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sometimes obsolete, or with dorsal branch. Dorsal fin long, notch separating weak spines from soft part, which always forms distinct lobe anteriorly, similar in form to anal fin. Finlets often present. Caudal moderate, forked. Ventral small, often reduced to single spine. Coloration metallic, usually brilliant.

Fishes of the high seas, some bathypelagic and most valued as food.

# Analysis of Genera

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- a. Thyrstitinae. Spinous dorsal moderately long, spines less than 30; finlets usually few; caudal without keel; pectoral rather low.
- b. Ventral well developed, rays I, 5.
- c. Dorsal and anal with detached finlets; palatines toothless; body largely naked.
- d. Lateral line present.
- e. Skin with small thin scales; body rather elongated.
- f. Lateral line double, upper section along back to below soft dorsal, lower section bent down below fourth and fifth dorsal spines until median on side, then straight to caudal. Thyrstitoides.
- f. Lateral line single.
- g. Dorsal and anal finlets 6. Thyrstites.
- g. Dorsal finlets 5, anal 4. Thyrstitops.
- g. Dorsal finlets 2, anal 3. Escolar.

d.<sup>2</sup> no lateral line; skin spinigerous;  
abdomen beeled; body ellipsoid.

Ruvettus.

c.<sup>2</sup> no finlets; palate toothless; scales  
minute.

h.<sup>1</sup> Dorsals divided; single axial  
lateral line.

Nesiarchus.

h.<sup>2</sup> Dorsal single; 2 lateral  
lines.

Epinmula.

b.<sup>2</sup> Ventral reduced to a single spine.

i.<sup>1</sup> Finlets present, 2 or 3  
(sometimes absent in young);  
vomer toothless; palatines with  
teeth; lateral line present.

j.<sup>1</sup> Lateral line single.

k.<sup>1</sup> dagger shaped spine  
behind vent.

l.<sup>1</sup> Lateral line slopes from  
shoulder to caudal base.

Nealotus.

l.<sup>2</sup> Lateral line obsolete.

Machaerops.

k.<sup>2</sup> no dagger shaped spine behind  
vent; lateral line high along back  
till over middle of pectoral, then

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falls little below median body axis to caudal base.

Promethichthys.

j.<sup>3</sup> Lateral line with upper section high along back to near end of soft dorsal, then branch below base of fifth ~~anal~~ dorsal spine curved down and back, finally straight to caudal base. Relea.

i.<sup>3</sup> no finlets; palate with teeth on vomer and palatines; preopercle spinigerous. Microtus.

a.<sup>2</sup> Gempylinae. Dorsal spines about 30, continuous with rays; dorsal and anal finlets ~~5 or~~ 5; ventral very small, rays I, 5. Gempylus.

Genus Thyrsitoides Fowler

Thyrsitoides Fowler, Ann. Natal  
Mus., vol. 5, pt. 2, p. 255, January  
1925. (Type Thyrsitoides marleyi  
Fowler, orthotypic.)

Body elongate, slender, compressed. Head pointed, compressed. Snout conic. Eye moderately small, little behind middle in head length. Maxillary small, exposed, reaches eye. Mandible well protruded in front of snout end. Interorbital low. Gill rakers not well defined, as minute spinules. Scales very thin, small, along body edges and lateral lines. Lateral line in 2 sections, upper along back anteriorly and lower axial and straight along middle of side. First dorsal spine longest, others all gradually shorter, base greatly longer than soft dorsal base.

simplex Richardson, monotypic.  
Girellops Regan, Proc. Zool. Soc.  
London, 1913, pt. 2, p. 367. Type  
Girella nebulosa Kendall and Radcliffe,  
monotypic.

Body oblong, ovate, compressed;  
mouth small. Each jaw with series  
of flat, movable, tricuspid incisors  
and posteriorly broad band of  
similar smaller ones; no molars;  
no teeth on vomer or tongue; lower  
pharyngeal teeth slender. Opercle  
with small spine. Gill rakers slender.  
Branchiostegals 6. Vertebrae 27 or 28,  
of which 16 or 17 caudal. Air bladder  
divided into 2 posterior horns.  
Intestinal canal elongate. Pyloric  
coeca numerous. Peritoneum black.  
Scales moderate, finely ctenoid.  
Cheeks with very small scales.

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Soft dorsal and anal opposite,  
inserted behind middle in  
total length and each followed  
by 6 finlets. Caudal deeply  
forked, small. Ventral  
inserted opposite pectoral,  
much shorter.

differs from Thyrsoites  
in the presence of two lateral  
lines which unite anteriorly  
on the side of the body.

Camarina lyres, Proc. California Acad. Sci., 1860, p. 81. Type Camarina nigricans lyres, monotypic.

Incidens Gill, Proc. Acad. Nat. Sci. Philadelphia, 1862, p. 244. Type Crenidens simplex Richardson, monotypic.

Aplodon (not Rafinesque 1819, Spiix 1827) (A. Duméril) Thomnot, Bull. Soc. Philomath., Paris, series 7, vol. 7, 1883, p. 141. Type Aplodon margaritifera (A. Duméril) Thomnot = Crenidens

Thyrsitoides marleyi Fowler

Thyrsitoides marleyi Fowler, Ann.  
Katal Mus., vol. 5, pt. 2, p. 256,  
text fig. 2, January 1925 (type  
locality, Katal J.).

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Depth 8; head  $3\frac{3}{5}$ , width  $4\frac{1}{4}$ .

Snout  $2\frac{1}{5}$  in head from snout tip; eye 7,  $3\frac{1}{4}$  in snout,  $1\frac{3}{5}$  in interorbital; maxillary reaches eye, expansion  $1\frac{3}{4}$  in eye, length  $2\frac{1}{8}$  in head; teeth in jaws uniserial, compressed, slender, or lanceolate, 23 above and 26 below, - of latter first pair as exposed backwardly directed canines; 3 large & compressed upper median teeth, first depressible and  $\frac{1}{3}$  others which half of eye and firmly erect; front nostril small pore little behind last third in snout and hind nostril vertical slit  $\frac{1}{5}$  eye diameter, slightly behind

Scales minutely ctenoid, 65 to 67 in lateral line; 6 or 7 above, 18 to 22 below.

d. V, 12; a. III, 10.

Yellowish brown, darker above and often with purplish tinge on head. Iris blue. Fins grayish. Reaches 325 mm. (Barnard.)

Said to be a <sup>or omnivorous</sup> vegetable feeder and an excellent food fish.

middle in space between front nostril and eye; interorbital  $4\frac{3}{4}$  in head, broadly convex; short free edge of preopercle entire. Edge of front gill arch spinous, with 4 or 5 spinules on upper part of lower limb slightly more developed than short wide-set points; gill filaments  $1\frac{3}{5}$  in eye.

Skin very thin, tender or papery, with very irregular, minute, thin, cycloid scales; these thickly concentrated all along edge of back and along lower sides of belly and about vent, where more or less lanceolate; on head only patch of scales narrowly

Gymnocrotaphus curvidens Günther

~~Gymnocrotaphus curvidens Günther, Cat. Fishes Brit. Mus., vol. 1, 1859, p. 432 (figure not published). Cape of Good Hope.  $\frac{1}{m}$  Gilchrist and Thompson, Marine Biology. Rep. South Africa, vol. 2, 1914, p. 92 (habits).  $\frac{1}{m}$  Gilchrist, Marine Biology. Rep. South Africa, vol. 3, 1916, p. 6 (eggs).  $\frac{1}{m}$  Thompson, Marine Biology. Rep. South Africa, vol. 4, 1918, p. 94.  $\frac{1}{m}$  Barnard, Ann. South African Mus., vol. 21, pt. 2, 1927, p. 727 (False Bay, East London).~~

Depth 2 to  $2\frac{1}{2}$ ; head  $3\frac{1}{3}$  to  $3\frac{2}{3}$ . Eye 4 to  $4\frac{2}{3}$  in head, 2 to  $2\frac{2}{3}$  in snout,  $1\frac{1}{2}$  to 2 in interorbital,  $1\frac{1}{2}$  to 2 in preorbital depth; maxillary reaches about  $\frac{3}{4}$  to eye; interorbital moderately high. Gill rakers 8 or 9 on lower branch of first arch, often 6 or 7 with age.

on postocular and on occipital or predorsal region; on middle of side band around pectoral base scales few or only sparsely set, until on tail posteriorly and on caudal peduncle. Lateral line superior along back, upper branch reaching nearly to soft dorsal and lower branch descends about opposite fourth dorsal spine to median axis of body and thence to caudal base; courses of both lateral lines emphasized by at least double row of small scales.

D. XVIII, II, 11+6, first spine  $2\frac{3}{4}$  in total head length, first branched ray 3; A. II, 11+6,

747

Genus <sup>Can 130</sup> Gymnocrotaphus Günther  
Gymnocrotaphus Günther, Cat. Fishes  
Brit. Mus., vol. 1, 1859, p. 432. Type  
Gymnocrotaphus corvidens Günther,  
monotypic.

Series of broad lanceolate incisors,  
behind which band of smaller or  
cardiform teeth. No molars. Hind  
nostril narrow slit. Gill rakers short,  
especially with age. Branchiostegals 6.  
Pyloric coeca 3. Scales of moderate  
size. Cheeks naked. Opercle scaly.  
Soft dorsal and anal with basal scaly  
sheaths. Vertical fins partly covered  
with small scales. Fins low. Dorsal  
spines 10: Anal spines 3. Pectoral  
little longer than head.

South Africa.

first branched ray  $3\frac{1}{2}$ ; caudal  $1\frac{7}{8}$ , deeply forked; least depth of caudal peduncle  $7\frac{1}{8}$ ; pectoral  $2\frac{1}{2}$ ; ventral  $4\frac{1}{8}$ .

General color deep dusky or deep seal brown. Membranes of spinous dorsal blackish. Other fins all dark brown. Iris brown. When fresh body appeared a bronzy, green black color, with prominent teeth yellow and dorsal fin black and white. Large steel black disks along body.

~~Lat. 10° N. Long. 105° E.~~

Lat. 10° N. Long. 105° E. Only known from the type, described above.

preorbital with lower edge straight or slightly concave, not notched, not entirely concealing maxillary. Lower gill rakers 15 on first arch.

Scales 83 to 88 in lateral line; 10 above, 20 to 22 below, 10 rows on cheek with preopercle flange also scaly; predorsal scales extend forward to front eye edge. Tubercles in lateral line bifurcate, especially front ones.

D. 11, 11, spines moderately stout, fourth or fourth and fifth longest, about  $\frac{1}{2}$  or sometimes not much over  $\frac{1}{3}$  head length, first ray not longer than last spine; A. 10.

Grayish or brassy brown, darker above, silver below, with numerous pale longitudinal streaks in preserved examples. Dorsal, anal and ventral blackish or violaceous. Reaches 430 mm.

Antal coast. (Barnard.)

A. h. S. P., one example.  
natal coast. H. W. Bell Marley.  
Length 1280 mm. Type.

745  
cuv<sup>29</sup> Spondylisoma aenea (Gilchrist and Thompson)

Cantharus aeneus Gilchrist and Thompson,  
Ann. South African Mus., vol. 6, 1908-11,  
p. 166. Natal; Ann. Durban Mus., vol. 1,  
pt. 4, 1917, p. 35-7.

Cantharus aeneus Barnard, Ann. South  
African Mus., vol. 21, pt. 2, 1927, p. 724  
(Natal coast, False Bay).

Cantharus natalensis Gilchrist and  
Thompson, Ann. South African Mus.,  
vol. 6, 1908-11, p. 167. Natal.

Cantharus sinuatus Gilchrist and Thompson,  
op. cit., vol. 6, 1908-11, p. 131. Durban.

Depth  $2\frac{1}{4}$  to  $2\frac{1}{2}$ ; head  $3\frac{1}{2}$  to  $3\frac{3}{4}$ , profile  
gently convex, rather prominent bulge in  
front of eyes, below which snout rather  
concave. Eye  $3\frac{1}{2}$  to  $4\frac{1}{3}$  in head,  $1\frac{1}{2}$  to  $1\frac{1}{2}$  in  
snout,  $1\frac{1}{3}$  to 2 in preorbital depth,  $1\frac{1}{3}$   
to  $1\frac{1}{2}$  in interorbital; teeth moderate, outer  
row distinctly larger than inner row;

Genus Thyrsites Cuvier

Thyrsites Cuvier, Hist. Nat. Poiss.,  
vol. 8, p. 196, 1831 (Jan. 1832).

(Type Scamber atum Euphrasen,  
monotypic.)

? Acinacea Bory de St. Vincent, Voy.  
îles Afrique, vol. 1, p. 93, 1804; Dict.  
class. Hist. Nat., vol. 1, p. 93, 1822.

(Type Acinacea notha Bory de St.  
Vincent, monotypic.)

Acinaces Agassiz, Nomencl. Zool.,  
Index Univers., p. , 1845. (Type

Acinacea notha Bory de St. Vincent.)

(Emendation.)

Thersites McCoy, Prodr. Zool. Victoria,  
dec. 5, p. 19, 1880. (Type Scamber  
atum Euphrasen.) (Error.) (Not

Thersites Spence-Bate 1857 in amphipods)

7383.

1149

~~7383~~ Port Caltom, Busuanga

Island. December 15, 1908. Length <sup>100</sup> mm. <sup>344</sup>  
Smaller with  
black lateral band continued little  
beyond depressed second dorsal, though  
not quite to black caudal spot.

4 examples. Port Galera, Mindoro.  
June 9, 1908. Length 42 to 50 mm.

10 examples. Port San Vicente,  
November 18, 1908. Length 80 to 117 mm.

14787. Sablayan, Mindoro. December  
12, 1908. Length 140 mm.

5584 and 5585. San Miguel Harbor,  
Ticao Island. April 21, 1908. Length 260  
to 275 mm.

5727. Surigao, Mindanao. May 8, 1908.  
Length 124 to 247 mm. 2 examples.

18604. Tambul Sigambul, Tonguil  
Island. September 14, 1909. Length 211 mm.

18203. Tara Island. December 14, 1908.  
Length 142 mm.

(Kuhl and Van Hasselt)  
Leionura, Bleeker, Nat. Tijds. Ned.  
Indie, vol. 21, p. 68, 1860. (Type  
Leionura esox (Kuhl and Van Hasselt)  
Bleeker = Scomber atun Euphrasen,  
 monotypic.)

23250. Mantacao Island, west coast of Bohol. April 8, 1908. Length 137 mm.

14708. Matnog Bay, east coast of Luzon. May 31, 1909. Length 120 mm.  
9308, 11348, 19435, 19436. <sup>Island,</sup> Mompoy, Anabuyan Islands; vicinity of Marinduque. March 3, 1909. Length 96 to 138 mm.

23640, 10819, 10820. Murciélagos Bay, Mindanao. August 20-21, 1909. Length 106 to 140 mm.

19867 and 19868. Nabutas Point, Samar Island. July 24, 1909. Length 131 to 152 mm.

<sup>13445</sup> 19954, 23213, 23214. Opol, Mindanao. August 4, 1909. Length 122 to 154 mm.

12848, 16758, 16759, 22083. Pagapas Bay, Luzon. February 20, 1909. Length 137 to 153 mm.

Body elongate, compressed, profile fusiform, abdomen longer than tail. Head pointed, well compressed. Muzzle and snout conic. Eye high, median, without adipose lids. Mouth moderate, lower jaw protruding. Maxillary reaches eye. Teeth large, uniserial in jaws, some anteriorly at least above, canine like. Row of teeth on each palatine. Gill rakers on fleshy tubercular pads or bases and as clusters of small, slender, variable denticles. Branchiostegals 7. Air bladder present. Vertebrae 37. Scales minute, weak, feeble, irregular, very deciduous. Lateral line complete, high at first, falls abruptly below hind

Follow-Incl Caps

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Depth  $3\frac{1}{3}$ ; head  $3\frac{1}{4}$  to  $3\frac{1}{2}$ , width  $1\frac{3}{5}$  to  $1\frac{3}{4}$ . Snout  $3\frac{1}{4}$  in head; eye  $4\frac{1}{3}$  to  $4\frac{2}{5}$ ,  $1\frac{1}{4}$  in snout,  $1\frac{1}{5}$  in interorbital; maxillary reaches  $\frac{1}{2}$  in eye, length  $2\frac{1}{4}$  in head; teeth in narrow bands, villiform, outer upper row enlarged; interorbital  $3\frac{2}{3}$  in head, broadly convex; preopercle with narrow crenulated membranous border. Gill rakers  $5+10$ , short, spinulose,  $\frac{1}{6}$  of eye.

Scales 55 to 58 along above lateral line to caudal base; tubes 46 to 48 in lateral line to caudal base; 7 above, 14 or 15 below; vertical fins nearly scaly to tips.

D. X, I, 28 or 29, second spine  $1\frac{2}{5}$  in head, first ray 3; A. II, 7, second spine 3 or  $1\frac{3}{5}$  in postocular, second ray  $2\frac{1}{5}$  in head; caudal  $1\frac{2}{3}$ , rather broadly convex behind; least depth of caudal peduncle  $2\frac{4}{5}$ ; pectoral  $1\frac{2}{5}$ ; ventral  $1\frac{1}{3}$ , first ray ends in short filament.

Silvery, everywhere so clouded with brown dots as to quite obscure ground color. Vertical fins darker than body, except dull blue base of spinous dorsal. Length, 285 mm. (Ogilby.)

New South Wales, Queensland.

Johnius caretta Bloch

Johnius caretta BLOCH, Naturg. Ausland. Fische, vol. 7, 1793, p. 133, pl.

356, (Tranquebar). - SCHNEIDER, Syst. Ichth. Bloch, (1801, p. 74) (Tran-

quebar). - CANTOR, Journ. Asiat. Soc. Bengal, vol. 18, pt. 2, 1849, p.

1048 (Pinang). - BLEEKER, Verh. Kon. Akad. Wet. Amsterdam, ser. 3, vol.

14, (1874, p. 48 (compiled). - JORDAN and SEALE, Proc. Davenport Acad.

Sci., vol. 10, 1905, p. 11 (Hong Kong). - JORDAN and STARKS, Ann. Carnegie Mus., vol. 11, nos. 3-4, Nov. 5, 1917, p. 453 (Ceylon). - FOWLER, Journ. Bombay Nat. Hist. Soc., vol. 30, no. 4, Nov. 1926, p. 10 (Bombay); Proc. Acad. Nat. Sci. Philadelphia, 1929 (1930), p. 596 (Shanghai), p. 611 (Hong Kong).

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part of second dorsal. Dorsal  
spines slender, 18 to 20,  
moderately long. Soft dorsal  
small, low, followed by 6  
finlets. Anal like soft dorsal,  
followed by 6 or 7 finlets.  
Caudal forked. Caudal peduncle  
moderately constricted, compressed,  
without keels. Pectoral low,  
short. Ventral small, inserted  
little behind pectoral base.

One species.

*no diphs* *Follow - Incl Cape*  
Labrus carotta LACÉPÈDE, Hist. Nat. Poiss., vol. 3, 1802, p. 447 (description in key).

*1889*  
Corvina carutta CUVIER, Hist. Nat. Poiss., vol. 5, 1830, p. 124 (Pondichery; Malabar). - GÜNTHER, Cat. Fish. Brit. Mus., vol. 2, 1860, p. 302 (Sea of Pinang). - DAY, Fishes of Malabar, 1865, p. 51. - KÁROLI, Termesz. Füzetek, Budapest, vol. 5, 1881, p. 159 (Canton).

*a/* Sciaena carutta DAY, Fishes of India, pt. 2, 1876, p. 192, pl. 44, fig. 1 (Madras); Fauna Brit. India, Fishes, vol. 2, p. 122. - TIRANT, Service Océanogr. Pêch. Indo-Chine, 6<sup>e</sup> Note, 1929, p. 169 (Cochin China). ✓

Corvina carouna CUVIER, Hist. Nat. Poiss., vol. 5, 1830, p. 125. (Malabar). *Type*

*not pure*  
 Depth  $3\frac{2}{5}$  to  $2\frac{1}{2}$ ; head  $3\frac{1}{4}$  to  $3\frac{1}{2}$ , width  $1\frac{1}{2}$  to  $1\frac{3}{5}$ . Snout  $3\frac{2}{5}$  to  $3\frac{3}{5}$  in head; eye  $4\frac{1}{4}$  to  $5\frac{1}{4}$ ,  $1\frac{2}{5}$  to  $1\frac{1}{2}$  in snout,  $1\frac{1}{3}$  to  $1\frac{2}{5}$  in length interorbital; maxillary reaches  $\frac{3}{5}$  in eye,  $2\frac{4}{5}$  to 3 in head; 5 pores on chin; teeth in jaws in villiform bands, only upper outer row enlarged; interorbital  $3\frac{1}{2}$ , broadly convex; preopercle edge membranous. Gill rakers 4 + 9, short, low tubercles.

Scales 50 or 51 along above lateral line to caudal base; tubular scales 45 or 46 to caudal base and 4 or 5 more on latter; 6 or 7 scales above, 10 below, 25 to 30 predorsal. Scales with 8 to 12 basal radiating striae; 0 to 22 apical denticles, with 8 transverse series of basal elements; circuli very fine.

*the*  
 D. XI, 26, I, to 29, I, third spine 2 in head, first ray  $2\frac{7}{8}$  to  $3\frac{4}{5}$ ; A. II, 6, I or 7, I, second spine  $3\frac{3}{5}$  to  $3\frac{7}{8}$ , second ray  $2\frac{1}{4}$  to  $2\frac{2}{3}$ ; caudal  $1\frac{1}{2}$  to  $1\frac{4}{5}$ , obliquely convex behind, with lower median ray longest; least depth of caudal peduncle  $3\frac{1}{2}$  to  $3\frac{4}{5}$ ; pectoral  $1\frac{1}{4}$  to  $1\frac{1}{3}$ ; ventral  $1\frac{3}{4}$  to  $1\frac{4}{5}$ .

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Thyrsites atun (Euphrasen).

Scomber atun Euphrasen, Kon. Vet.  
Acad. Handl., Stockholm, vol. 12, p.  
315, 1791 (type locality, "Cap. b. Spei,  
nec non circa insulas hord-Eyland  
en Javam Indiae orientalis"). —  
Lacépède, Hist. nat. Poiss., vol. 5,  
pp. 678, 680, 1803 (Cape of Good Hope;  
Java).

Thyrsites atun Cuvier, Hist. nat.  
Poiss., vol. 8, p. 196, pl. 219, 1831 (Jan. 1832)  
(Table Bay; Java; New Zealand).  
— Valenciennes,  
Règne Animal, Cuvier, ed. ill., Poiss.,  
pl. 49, fig. 1, 1839. — Bleeker, Verh.  
Akad. Wet. Amsterdam, vol. 2, p. 10,  
1855 (Tasmania); nat. Tijds. ned.  
Indie, vol. 21, p. 68, 1860 (Cape of  
Good Hope). — Günther, Cat. Fish.  
Brit. Mus., vol. 2, p. 350, 1860 (Cape Seas;  
type of Thyrsites atun Richardson).

— Castelnau, Proc. Zool. Acclimat. Soc. Victoria, vol. 1, p. 103, 1872 (Bass Strait). — Peters, Monatsber. Akad. Wiss. Berlin, p. 835, 1876 (1877) (Cape of Good Hope). — Klunzinger, Sitzb. Ber. Akad. Wiss. Wien, math.-naturw. Kl., vol. 80, pt. 1, p. 375, 1879 (1880) (Murray River; Hobson's Bay). — Sauvage, Arch. Zool. Exper., vol. 8, p. 3, 1879 (St. Paul Island), p. 29 (Australia).

— Johnston, Proc. Roy. Soc. Tasmania, pp. 81, 117, 1882 (1883). — Woods, Fish. Fisher. New South Wales, p. 56, 1882 (Tasmania). — Lucas, Proc. Roy. Soc. Victoria, n.s., vol. 2, p. 23, 1889 (1890). — Johnston, Proc. Roy. Soc. Tasmania, pp. 81, 117, 1890 (1891). — Kent, Natural. Australia, p. 170, pl. 28, fig. 2, 1897. — Goode and Bean, Oceanic Ichth., p. 194, 1895 (reference).

- Waite, Rec. Austral. Mus., vol. 5, p. 56, 1903 (Coogee near Sydney). —
- Stead, Fishes of Australia, pp. 166, 264, fig. 60, 1906. — Waite, Rec. Canterbury Mus., vol. 1, p. 24, 1907.
- Stead, Edible Fishes of New South Wales, p. 99, 1908. — Waite, Rec. Canterbury Mus., vol. , p. 235, 1911 (New Zealand). — McCulloch, Zool. Res. Endeavour, vol. 1, p. 80, 1911 (Flinders Island; Bass Strait; west of Kingston, South Australia).
- Weber, Siboga Exped., vol. 5, Fische, p. 407, 1913 (Macassar, Celebes; Bara, Borneo). — Regan, British Antarctic Exped., Zool., vol. 1, p. 16, 1914.
- Gilchrist, Marine Biol. Rep. South Africa, vol. 2, p. 116, fig., 1914 (habits; statistics); vol. 3, p. 8, 1916 (egg). — Regan, British Antarctic Exped., Zool., vol. 2, p. 144, pl. 8, figs. 1-3, 1916 (North Cape, New Zealand).

— Waite and McCulloch, Trans. Roy. Soc. South Australia, vol. 39, p. 465, 1915 (South Australia). — Roughley, Fishes of Australia, p. 166, 1916.

— Thompson, Marine Biol. Rep. South Africa, vol. 4, p. 113, 1918 (references). — McCulloch, Rec. Austral. Mus., vol. 13, no. 4, p. 139, pl. 24, fig. 2, 1921 (Sydney). — Phillips, New Zealand Journ. Sci. Tech., vol. 4, no. 3, pp. 118, 124, 1921 (New Zealand). — Waite, Rec. South Austral. Mus., vol. 2, p. 144, fig. 226, 1921 (South Australia; New Zealand). — Phillips and Hodgkinson, New Zealand Journ. Sci. Tech., vol. 5, no. 2, p. 94, 1922 (Auckland). — Fowler, ~~Proc. Acad. Nat. Sci. Philadelphia, vol. 75, p. 43, 1923~~ ~~Melbourne~~. — Lord and Scott, Zool. Verteb. Animal. Tasmania, p. 81, fig. 1927 (Tasmania).

- Fowler, Proc. Acad. Nat. Sci. Philadel-  
phia, vol. 78, 1926, p. 278 (Chile) —
- Barnard, Ann. South Afric. Mus.,  
vol. 21, pt. 2, p. 788, pl. 29, fig. 1,  
October 1927 (Table Bay; Mossamedes;  
False Bay; Mossel Bay; Algoa Bay).
- McCulloch, Austral. Mus. Mem., no. 5,  
pt. 2, Sep. 10, 1929, p. 268 (reference) —
- Whitley, Rec. Austral. Mus., vol. 18, no. 4,  
p. 151, June 29, 1931 (detailed references).
- McCulloch, Fishes of New South  
Wales, ed. 3, p. 81 pl. 34, fig. 301a,  
1934.

Leaded  
Follow—Incl Caps

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Silvery, with light streak along each row of scales. Young with dark bluish mark on opercles, less distinct with age. Young with black interspinous dorsal membranes, but only as black outer edge with age. Second dorsal stained gray at upper third. (Day.)

India, China, Queensland. Also reported from the Philippines by Elera. According to Day it reaches 945 mm.

Johnius borneensis (Bleeker) ← 129

Otolithus borneensis BLEEKER, Nat. Tijds. Nederland. Indië, vol. 1, 1850, p. 268. (Bandjermassing, in rivers, Borneo).

Sciaena borneensis GÜNTHER, Cat. Fish. Brit. Mus., vol. 2, 1860, p. 294 (compiled). - ELERA, Cat. Fauna Filip., vol. 1, 1895, p. 501 (Samar).

Sciaenops, 184. Sciaenops borneensis BLEEKER, Verh. Kon. Akad. Wet. Amsterdam, ser.

Dentex, 84, 102.

Spondyllosoma, 182, 184.

Bodianus fischerii, 70.

lentjan, 57.

leutjan, 57, 59.

Bola, 371.

axillaris, 397.

chaptis, 375.

coibor, 378.

coitor, 405.

cujus, 390.

ossea, 379.

pama, 360.

bola, Cyprinus, 371.

bomhanensis, Lethrinus, 21.

bomhanensis, Lethrinus, 21.

Thysites atten Richardson, Proc.  
Zool. Soc. London, vol. 7, p. 99, Nov.  
1839 (error); Tasmania Journ. Sci.  
vol. 1, p. 108, 1842.

Thersites atum McCoy, Prodr. Zool.  
Victoria, dec. 5, p. 19, pl. 44, figs. 1-  
1a-b (not 1c-d), 1880 (Victoria) (error).

Thysites atum Fowler, Proc. Acad.  
Nat. Sci. Philadelphia, vol. 75, 1923,  
p. 43 (Victoria) (error).  
Melbourne

159

Paired fins usually much paler than others. Often small inconspicuous dusky spot at bases of last anal rays. In small examples upper and lower caudal edges show more distinctly darker in most cases.

Only known previously from 3 examples Bleeker described from Singapore. It is greatly like Lipogon taeniatus as figured and described by Day, but different. All our examples show the vertical dark bands different. They are always broken, besides the second extends from the bases of the last dorsal rays and not the median as Day shows. They also differ in the ridge as

Leucocombrus atun Vander Hoeven,  
Handbook of Zoology, Clark, vol. 2,  
p. 161, 1858 (Cape of Good Hope).

Trichurus atun Sauvage, Archiv.  
Zool. Exper., vol. 8, p. 28, 1879 (error).

Scomber dentatus Schneider, Syst.  
Ichth., ~~vol~~ p. 24, 1801 (Type locality,  
New Zealand L = Queen Charlotte Sound).

? Acenacea notha Bory de St. Vincent,  
Voy. des Afrique, vol. 1, p. 93, 1804;  
Annot. Class. Hist. Nat., vol. 1, p. 93,  
1822 (type locality, off the African  
coast).

151.  
Above bluish or greenish gray, sides and below silvery. Iris yellow.  
Fins yellowish. Length 92 mm. (Bleeker).

Borneo. Recorded from Samar by Elera. Bleeker had but one specimen.

Johnius osseus (Day)

<sup>US</sup>  
# Sciaena ossea DAY, Fishes of India, pt. 2, 1876, p. 193, pl. 46, fig. 3,  
type locality

(Malabar coast of India); Fauna Brit. India, vol. 2, 1889, p. 123.

# Bola ossea JORDAN and STARKS, Ann. Carnegie Mus., vol. 11, Nos. 3-4,

Nov. 25, 1917, p. 453. (Ceylon).

# Johnius cantori (not Bleeker) Fowler,

Proc. Acad. Nat. Sci. Philadelphia,  
1931, p. 447 (Singapore).

for name  
" Depth  $3\frac{2}{5}$  to  $3\frac{1}{2}$ ; head  $3\frac{1}{5}$  to  $3\frac{1}{4}$ ,  
width  $1\frac{4}{5}$ . Snout  $3\frac{1}{4}$  to  $3\frac{2}{5}$  in  
head; eye 4 to  $4\frac{1}{4}$ ,  $1\frac{1}{4}$  in snout,  
 $1\frac{1}{8}$  to  $1\frac{1}{4}$  in interorbital;  
maxillary reaches  $\frac{2}{5}$  to  $\frac{1}{2}$  in eye,

Thyrsites chilensis <sup>Cuvier</sup> Valenciennes, Hist.  
Nat. Poiss., vol. 8, <sup>1 (Jan. 1832)</sup> 1838, p. 204, (type  
locality, Valparaiso, Chile).

— Guichenot, Hist. Nat. Chile, Gay,  
vol. 2, ~~18~~, p. 226, 1848.

Scomber lanceolatus (Forster) Cuvier, Hist.  
Nat. Poiss., vol. 8, p. 204, 1831 (Jan. 1832) (type  
locality, Queen Charlotte Sound, New Zealand).

Thyrsites altivelis Richardson, Proc.  
Zool. Soc. London, vol. 7, November 1839,  
p. 99 (type locality, Port Arthur,  
Tasmania).

Thyrsites atun var. altivelis  
Richardson, Trans. Zool. Soc. London,  
vol. 3, pt. 1, p. 119, 1842 (Tasmania).

Scomber splendens (Solander)  
Richardson, Rept. 12th Meet. Brit.  
Assoc. Adv. Sci., p. 20, 1842 (1843).  
(Type locality, Murderers' Bay,  
New Zealand).

Scomber dentex (not Schneider 1801)  
Richardson, Rept. 12th Meet. Brit.  
Assoc. Adv. Sci., p. 20, 1842 (1843)  
(Queen Charlotte Sound, New Zealand).

Depth  $3\frac{1}{2}$  to 4 in total; head  $3\frac{1}{2}$  to  $3\frac{2}{3}$ , width 2. Eye  $4\frac{1}{4}$  to 5 in head,  $1\frac{1}{4}$  in snout, 1 in interorbital; lower jaw shorter than upper, overhung by snout; maxillary reaches  $\frac{1}{2}$  to  $\frac{2}{3}$  in eye; transverse row of 4 pores across snout, free edge of skin with 5 pores and lateral lobe; central pore below, mandibular symphysis with 2 more either side; teeth villiform, upper with outer row of conical curved ones most developed near median line; lower teeth in several rows above symphysis, laterally inner row of enlarged curved teeth; preopercle with 6 wide set rather strong denticles at angle, lower edge crenulate in young.

Scales 65 above along lateral line to caudal base, 58 along below lateral line; 45 to 48 in lateral line to caudal base; 8 above, 16 below; scales ctenoid, except on cheeks.

*Here* — D. X, I, 23 or 24, third to seventh spines longest and equal half body depth; A. II, 7, second spine  $\frac{2}{3}$  first ray or  $\frac{1}{3}$  body depth; caudal cuneate in young, more obtuse with age; pectoral equals head without snout; ventral reaches half way to vent, outer ray prolonged.

Silvery gray, abdomen whitish. Cheeks tinged golden. Black bands, sometimes interrupted, extend over back; first from nape passes back and down, ends shortly below lateral line; second begins opposite fifth to seventh dorsal spines, passes back and down to end opposite middle of ventral; third arises opposite second and third dorsal rays or between two dorsal fins, passes down parallel to second band; fourth begins below center of second dorsal and descends to lateral line; fifth follows same course below last few dorsal rays; sometimes sixth over free part of tail. Upper  $\frac{2}{3}$  of first dorsal stained black, indistinct with age. Caudal slightly tinged with black, other fins yellowish. Reaches 305 mm. (Day.)

India, Pinang.

Leionura exox (Kuhl and Van  
Hasselt) Bleeker, Nat. Tijds.  
Ned. Indie, vol. 21, p. 68, 1860

(type locality, South Africa [sic  
Whitley 1931]).

as well as the ~~margin~~ edge of the preopercle denticulate. Day shows the ridge of the preopercle entire. None of our examples have the first membrane of the ventral dark. Also all have the dark caudal spot much smaller, in no case greater than a scale in extent. Bleeker's figure of the present species is also somewhat different in minor details. He does not show the dark vertical bars broken or in any way incomplete. There is also no indication of the usual dark spot at the bases of the last anal rays. Many of our examples have a dark subbasal streak on second dorsal, also not shown by Bleeker.

Depth  $7\frac{3}{4}$  to  $7\frac{4}{5}$ ; head  $3\frac{3}{4}$  to  $3\frac{4}{5}$ ,  
width  $3\frac{1}{5}$  to  $3\frac{1}{2}$ . Snout  $2\frac{1}{4}$  to  $2\frac{1}{3}$   
in head from snout tip; eye  $5\frac{1}{2}$  to  
 $6\frac{7}{8}$ ,  $2\frac{1}{3}$  to 3 in snout,  $1\frac{1}{10}$  to  $1\frac{1}{2}$  in  
interorbital; maxillary reaches  
eye, expansion  $1\frac{1}{2}$  to  $1\frac{3}{4}$ , length  
 $2\frac{1}{5}$  to  $2\frac{1}{4}$  in head from snout  
tip; 3 large upper front canines,  
followed by about 20 close set  
compressed pointed teeth each  
side; 14 or 15 teeth each side of  
lower jaw with median longest;  
row of small, close set, pointed  
teeth on each palatine; interorbital  
 $4\frac{2}{3}$  to  $4\frac{3}{4}$ , low, level. Gill rakers  
7 + 24, clusters of slender, fine  
denticles, longest in angle  $2\frac{1}{3}$   
in eye.

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Back drab gray, with deep soiled appearance, under surface white. Iris pale or yellowish white. Lateral line embraced with pale median streak or narrow band its whole length. Spinous dorsal slate gray to blackish terminally. Soft dorsal and caudal brownish, other fins pale, soiled or brownish.

India, Ceylon, Pinang, Cochin China, China. Known by the pale band containing lateral line its entire course, obtuse snout and uniform villiform mandibular teeth.

2 examples, A.N.S.P. □ Bombay. Bombay Natural History Society. Length 150 to 230 mm.

52862, 52863, A.N.S.P. Hong Kong. Henry W. Fowler. Length 171 to 230 mm.

Johnius albiflora (Richardson) ← 129

Corvina ? albiflora RICHARDSON, Ichth. China Japan, (1846, p. 226, (Cantor

Sciaena albiflora GÜNTHER, Ann. Mag. Nat. Hist., ser. 4, vol. 12, 1873,

p. 378, (Cheefoo). REGAN, Ann. Mag. Nat. Hist., vol. 15, ser. 7, 1905

p. 20 (Inland Sea of Japan). JORDAN and THOMPSON, Proc. U.S. Nat.

Mus., vol. 39, (1911, p. 249, fig. 2 (Port Arthur, Manchuria). JORDAN

and METZ, Mem. Carnegie Mus., vol. 6, No. 1, June 1913, p. 36, fig.

27 (Port Arthur, Fusan, Chinnampo, Korea). IZUKA and MATSUURA, Cat.

Zool. Spec. Tokyo Mus., Vertebr., (1920, p. 147 (Takamatsu). ✓

Sciaena (Corvina) albiflora STEINDACHNER, Denkschr. Akad. Wiss. Wien,

Math.-nat. Kl., vol. 59, pt. 1, 1892, p. 361 (Shanghai).

Nibea albiflora JORDAN and HUBBS, Mem. Carnegie Mus., vol. 10, No. 2,

June 27, 1925, p. 243 (Fukuoka).

Scales about 247 along lateral line to caudal base, very deciduous, loosely attached, weak, thin, irregular. Lateral line complete, high along back at first - or until about last third in spinous dorsal length, then falls axially along side of tail to caudal base, scales  $87 + 75?$  in its course.

D. XX - I, I,  $10 + 6$ , fourth spine 3 to  $3\frac{3}{4}$  in total head length, first branched ray  $3\frac{1}{2}$  to  $3\frac{3}{4}$ ; A. I, I,  $9 + 7$ , first branched ray  $3\frac{1}{5}$  to  $4?$ ; caudal  $1\frac{3}{5}$  to  $1\frac{4}{5}$ , deeply forked; least depth of caudal peduncle  $7\frac{1}{5}$  to  $7\frac{1}{4}$ ; pectoral  $2\frac{1}{3}$  to  $2\frac{3}{5}$ , rays II, 12; ventral I, 5, fin  $5\frac{3}{4}$  to  $5\frac{4}{5}?$  in total head length.

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Pagrus macrocephalus BASILEWSKY, Nouv. Mém. Soc. Nat. Moscou, vol. 10, 1855, p. 222, pl. 3, fig. 1 (Gulf of Pechili and Oriental Sea, Peking). *type locality*

Sciaena ten-lo BASILEWSKY, Nouv. Mém. Soc. Nat. Moscou, vol. 10, 1855, p. 220, pl. 1, fig. 3, Gulf of Pechili, Peking.

Corvina macrophthalmus BLEEKER, Nederland. Tijdschr. Dierk., vol. 4, 1874, p. 117 (China).

Depth  $3\frac{1}{2}$  to  $3\frac{2}{5}$ ; head  $2\frac{7}{8}$  to  $3\frac{1}{2}$ , width 2 to  $2\frac{1}{4}$ . Snout  $3\frac{7}{8}$  to 4 in head; eye  $3\frac{2}{3}$  to  $5\frac{2}{5}$ , equals snout in young to  $1\frac{1}{2}$  with age, equals interorbital in young to  $1\frac{1}{3}$  with age; maxillary reaches  $\frac{3}{4}$  in eye in young to  $\frac{1}{2}$  with age, expansion  $1\frac{4}{5}$  to 2 in eye, length  $2\frac{1}{4}$  to  $2\frac{1}{3}$  in head; mouth partly inferior, 5 pores at chin; rather narrow bands of villiform teeth in jaws, outer upper row and inner lower row enlarged, former slightly canine like anteriorly; interorbital  $3\frac{7}{8}$  to  $4\frac{1}{10}$ , broadly convex; preopercle edge finely denticulate, denticles at angle largest. Gill rakers 8 + 13, lanceolate equal gill filaments or  $\frac{1}{2}$  eye; 2 upper and 4 lower gill rakers rudimentary.

Scales 47 to 53 in lateral line to caudal base and 15 to 23 more out over caudal fin; 9 or 10 above, 10 to 12 below, 30 predorsal forward to occiput and 18 to 20 more forward to snout end; 13 principal rows across cheek. Scales with 9 to 12 basal radiating striae; 22 to 30 apical denticles, with 6 to 11 transverse series of basal elements; circuli fine.

D.  $\overline{\text{X}}$  or  $\overline{\text{XI}}$ ,  $\overline{\text{I}}$ , 29,  $\overline{\text{I}}$  or 30,  $\overline{\text{I}}$ , third spine 2 to  $2\frac{1}{8}$  in head, first ray 3 to  $3\frac{1}{5}$ ; A.  $\overline{\text{II}}$ , 7,  $\overline{\text{I}}$ , second spine  $2\frac{1}{5}$  to  $2\frac{1}{4}$  in head or  $1\frac{1}{8}$  to  $1\frac{1}{4}$  in postocular, first ray  $1\frac{3}{4}$  to  $1\frac{4}{5}$  in head; caudal  $1\frac{1}{5}$  to  $1\frac{1}{4}$ , cuneate; least depth of caudal peduncle  $3\frac{1}{4}$  to 4; pectoral  $1\frac{1}{2}$  to  $1\frac{2}{3}$ ; ventral  $1\frac{1}{2}$  to  $1\frac{3}{5}$ .

Back brown, sides and below silvery white. Iris pale or whitish. Spinous dorsal with membranes, especially anteriorly, blackish brown. Other fins more or less brownish, with pectoral axil blackish brown. Inside mouth dark brown. Inside gill ~~opercle~~ opening pale.

Patagonia, South Africa,  
South Australia, Victoria,  
Tasmania, New South Wales,  
New Zealand.

no lights

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Brown, below paler or whitish, with silvery white reflections. On back above lateral line many dark waved streaks, more or less oblique, but variably broken and irregular, often leaving pale or immaculate area, frequently appearing as pale band parallel with lateral line. Below lateral line down till level with pectoral dark lines all more or less oblique. Iris whitish. Spinous dorsal blackish, basally whitish. Soft dorsal whitish basally, with black blotch at base of each ray and fin subterminally dusky. Caudal brown, dusky terminally. Other fins all pale brownish, few dusky obscure blotches on front of soft anal.

China, Korea, Japan.

76063 U.S.N.M. Shanghai, China. June, 1927. A. de C. Sowerby. Length, 216 to 238 mm. (3 examples.)

85872 U.S.N.M. China. A. de C. Sowerby. Length, 58 to 158 mm. (26 examples.)

These small specimens were preserved in formaline and the dark lines on the back have faded or are inconspicuous. In the very small ones there are 5 or 6 obscure large blotches along the back, chiefly above the lateral line, and as the fish grow larger these break up into spots or irregular short streaks, so that the largest approach the pattern of Sciaena mitsukurii. All have the spinous dorsal blackish terminally, the soft dorsal pale basally with subbasal row of dark spots and then terminal half of fin dark.

86359 U.S.N.M. China. A. de C. Sowerby. Length, 107 mm.

87022 U.S.N.M. Foochow. A. de C. Sowerby. Length, 63 mm.

87060 U.S.N.M. Foochow. A. de C. Sowerby. Length, 67 mm.

97063 U.S.N.M. Shanghai. June, 1927. A. de C. Sowerby. Length, 63 to 250 mm. 13 examples.

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U. S. N. M., no. 19896. H. Lat.  $36^{\circ}$   
W. Long.  $75^{\circ}$ . Capt. Herndon. Length  
620? mm.

U. S. N. M., no. 39695. New Zealand.  
Otago University. Length 243 mm.

U. S. N. M., no. 77301. Port Otway,  
Patagonia. February 10, 1888.  
Albatross Collection. Length 179  
to 204 mm. 25 examples.

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Johnius australis (Günther) 129

Corvina australis GÜNTHER, Rep. Voy. Challenger, Zool., vol. 1, pt. 6, 1880, p. 33. (Mary River, Tiaro, Queensland).

Sciaena australis OGILBY, Mem. Queensland Mus., vol. 6, Dec. 19, 1918, p. 75, pl. 22 (Brisbane River).

Corvina canina DE VIS, Proc. Linn. Soc. New South Wales, vol. 9, Nov. 29, 1885, p. 538. (Brisbane River).

Depth  $3\frac{1}{4}$  to  $3\frac{1}{2}$ ; head  $3\frac{1}{5}$  to  $3\frac{1}{3}$ , width  $1\frac{2}{3}$  to  $1\frac{4}{5}$ . Snout 3 to  $3\frac{2}{5}$  in head; eye 4 to  $4\frac{2}{3}$ ,  $1\frac{3}{4}$  in snout,  $1\frac{1}{5}$  in interorbital; maxillary reaches  $\frac{1}{2}$  in eye, expansion  $1\frac{4}{5}$  in eye, length  $2\frac{1}{3}$  to  $2\frac{2}{5}$  in head; teeth above minutely triserial, outer row enlarged; mandible with outer row of small curved teeth and inner row of 10 enlarged teeth; interorbital  $3\frac{2}{3}$  to  $3\frac{4}{5}$ ; preopercle edge denticulate. Gill rakers 6 or 7 + 12 or 13, with some rudiments, short, slender, longest  $\frac{1}{3}$  of eye.

Scales 54 to 56 above along lateral line; 50 tubular scales (on figure) in lateral line to caudal base; 9 above, 16 to 18 below (on figure 8 above anal origin to lateral line); soft dorsal, anal and caudal with small scales basally.

D. XI, 29 to 31, third spine  $2\frac{1}{10}$  to  $2\frac{2}{3}$  in head, first ray  $2\frac{4}{5}$  to 3; A. II, 7, spines short, weak, second  $3\frac{2}{3}$  to 4, first ray  $2\frac{1}{8}$ ; caudal  $1\frac{2}{3}$ , obtusely cuneate or rounded; least depth of caudal peduncle  $3\frac{2}{3}$ ; pectoral  $1\frac{1}{2}$ ; ventral  $1\frac{4}{5}$ .

Silver gray above, shading through silver on sides to pearl white on breast and belly. All upper lateral scales densely powdered with dusky dots as 4 broad longitudinal darker gray bands, 2 above and 2 below lateral line. Dorsal, caudal and pectoral gray, spinous dorsal closely dotted to obscure ground color, becomes darker from base upward so outer third appears blackish. Soft dorsal with dots much less crowded, only narrow marginal and suprabaasal band appearing blackish. Caudal tips blackish. Small dark spot in and behind pectoral axil. Anal and ventral white. Length, 276 mm. (Ogilby.) Queensland.

Genus Thyrsitops Gill

Thyrsitops Gill, Proc. Acad. Nat.  
Sci. Philadelphia, ~~1862~~ p. 126, 1862.  
(Type Thyrsites lepidopoides  
Valenciennes, orthotypic.)

Body fusiform, elongate. Head moderate. Snout acuminate.

Eye moderate, little advanced from middle of head length.

Mouth rather large, lower jaw protruding. Maxillary reaches below eye. Teeth in jaws; on vomer and palatines small, none on tongue, with several upper front ones canines.

Opercle deeply emarginate.

Small feeble scales only on posterior part of tail. Lateral line single, distinct, complete, little high at first, axial along side of body. First dorsal low, largely uniform, base greater than rest of dorsal fin base. Soft dorsal lobe higher than anterior or spinous fin, and followed by 4 finlets.

Viracantharus, new subgenus <sup>same coly</sup> 8/

Type 1 Cantharus aeneus Gilchrist and ~~Thompson~~  
Thompson.

diagnosis.  $\frac{1}{2}$  snout short, blunt, pug  
nosed. Preopercle flange scaly.  
Scales small.

8 σιπός, pug nosed; Cantharus.

Anal opposite soft dorsal, similar.  
Caudal emarginate. Caudal  
peduncle compressed, without  
lateral keel either side. Pectoral  
low, short. Ventral shorter,  
inserted little behind pectoral  
base.

A single species on the  
coasts of Brazil.

Scales 64 to 69 in lateral line; 7 or 10 above, 18 to 20 below, 8 or 9 rows on cheeks and preopercle flange scaleless, predorsal scales extend forward to  $\frac{1}{2}$  or  $\frac{2}{3}$  in eye. Lateral line tubes bifurcate, especially anteriorly.

D. X, 11 or 12, spines stout, fourth or fourth and fifth longest, 3 to 4 in head, first ray longer than last spine; A. III, 10.

Uniform gray, brownish, sometimes brassy or bluish, variably lighter or darker. Usually lighter or silver below. Reached 450 mm. (Barnard.)

South Africa.

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Thyrsoitops lepidopoides (Cuvier)

Thyrsoites lepidopoides Cuvier,  
Hist. Nat. Poiss., vol. 8, p. 205, pl.  
220, 1831 (Jan. 1832) (type locality,  
Brazil). — Günther, Cat. Fish.  
Brit. Mus., vol. 2, p. 350, 1860  
(copied).

Thyrsoites lepidopoides Lesson, Voy.  
Coguille, Zool., pt. 2, p. 158, pl. 15, 1831  
(Brazil).

Thyrsoitops lepidopoides Goode and  
Bean, Oceanic Ichth., p. 194, 1895  
(copied). — Ribeiro, Arch. Mus.  
Nac. Rio Janeiro, vol. 17 (Gempylidae),  
p. 4, 1915 (F.S.F. Rasa Island).

Depth  $5\frac{2}{5}$ ; head  $3\frac{2}{5}$ . Snout  $2\frac{2}{3}$  in head from snout tip; eye  $6\frac{3}{4}$ ,  $2\frac{2}{5}$  in snout; maxillary reaches  $\frac{1}{2}$  in eye, expansion  $1\frac{2}{5}$ , length  $2\frac{1}{8}$  in head from snout tip; interorbital low.

Fins apparently scaleless.

D. XV, I,  $15 + 4$ , first spine  $5\frac{2}{3}$  in total head, first branched ray  $3\frac{7}{8}$ ; A. III,  $13 + 4$ , first branched ray  $4\frac{1}{3}$ ; caudal  $1\frac{3}{5}$ , deeply forked; least depth of caudal peduncle  $6\frac{1}{5}$ ; pectoral  $2\frac{1}{5}$ , rays I,  $14$ ; ventral rays I,  $5$ , fin  $3\frac{3}{4}$  in total head.

Back dark bluish, below brownish. Iris brown. Spinous dorsal whitish, other fins grayish. Length 540 mm. (Lesson.)

Sparus brama (not Bonnaterre) Block,  
 naturgesch. Mus. Fische, vol. 5, 1791,  
 p. 77, pl. 267 (Cape of Good Hope). —  
Walbaum, Artedii Pisc., vol. 3, 1792, p.  
 290 (on Block; part).  $\frac{1}{m}$  Lacépède, Hist.  
Nat. Poiss., vol. 4, 1802, pp. 37, 115 (Cape  
 record).

Cantharus castelnaui Bleeker, Naturk.  
Tijdschr. Dierk. Indiv., vol. 21, 1860,  
 p. (50, 52) 57 (Capp).

Depth  $2\frac{1}{2}$ ; head 3, profile sloping  
 gently and nearly evenly convex. Eye  $3\frac{1}{2}$   
 to 5 in head, 1 to 2 in snout,  $1\frac{1}{4}$  to  $2\frac{1}{2}$   
 in interorbital,  $1\frac{1}{2}$  to little over 1 in  
 preorbital depth, outer row of teeth  
 considerably larger than succeeding inner  
 series; preorbital not concealing hind  
 part of maxillary, lower edge nearly or  
 quite straight. Lower gill rakers 13 or  
 14 on first arch.

Brazil. Cuvier's figure shows a much less forked caudal than Lesson's figure, also the eye vertically ellipsoid.

~~Spondylosoma blochii (Valenciennes)~~

~~Cantharus blochii Valenciennes, Hist. Nat.~~

~~Pois., vol. 6, 1830, p. 339. Cape of Good Hope.~~

~~$\frac{1}{m}$  Günther, Cat. Fishes Brit. Mus., vol. 1,~~

~~1859, p. 416 (Cape Fear, False Bay).  $\frac{1}{m}$~~

~~Bleeker, Naturk. Tijdschr. Nedert. Indië,~~

~~vol. 21, 1860, pp. (47, 52) 60 (Cape).  $\frac{1}{m}$  Kner,~~

~~Reise Novara, Fische, 1865, p. 74 (Cape).  $\frac{1}{m}$~~

~~Lempe, Deutsche Sudpolar Exped., vol. 15,~~

~~pt. 2, 1914, p. 234 (Simonstown).  $\frac{1}{m}$  Gilchrist~~

~~and Thompson, Marine Biolog. Rep. South~~

~~Africa, no. 2, 1914, p. 94.  $\frac{1}{m}$  Gilchrist,~~

~~Marine Biolog. Rep. South Africa, no. 3,~~

~~1916, p. 6 (egg).  $\frac{1}{m}$  Thompson, Marine~~

~~Biolog. Rep. South Africa, no. 4, 1918, p. 84~~

~~(references).~~

Caranthus blochi Barnard, Ann. South

African Mus., vol. 21, pt. 2, 1927, p. 721

(South west Africa, Waldeanba, Table, False

Bays, Agulhas Bank).

Genus Escolar Goode and Bean

Escolar (Jordan and Evermann) (Goode  
and Bean, Oceanic Ichth., ~~1895~~ p.  
516<sup>9</sup>, (Type Thyrsitops violaceus ~~August 23, 1896~~),  
1895 (August 23, 1896).  
J. H. Bean, monotypic.)

Bipinnula Jordan and Evermann,  
Bull. U. S. Nat. Mus., No. 47, pt. 1, p. 878,  
1896 (October 3), ~~p. 878~~. (Type  
Thyrsitops violaceus J. H. Bean,  
monotypic.)

Body elongate, greatly compressed, with flattened sides. Tail little less than half of trunk. Caudal peduncle short, compressed, moderately deep. Head large, well compressed, with long, pointed jaws. Snout long, conic, ends in tough fleshy point. Eye large, high, little postmedian in head, without adipose lids. Mouth large, lower jaw well protruded in tough fleshy point well before snout tip. Teeth all compressed, slender, strong, with 3 large, barbed, alternating fangs above in front. No teeth on tongue or palatines. Nostrils 2, front one simple, hind one short slit midway between front one and eye. Maxillary free, reaches eye. Hind preopercle edge with slight notch below or

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Depth  $4\frac{2}{3}$  to  $5\frac{1}{3}$ ; head  $3\frac{1}{5}$  to  $3\frac{2}{5}$ , width 2 to  $2\frac{1}{5}$ . Snout  $2\frac{1}{5}$  to  $2\frac{1}{3}$  in head; eye  $3\frac{2}{3}$  to 5,  $1\frac{2}{5}$  to  $2\frac{1}{8}$  in snout, greater than inter-orbital in young to 1 to  $1\frac{1}{5}$  with age; maxillary reaches  $1\frac{1}{2}$  to  $1\frac{4}{5}$  in snout, length  $3\frac{2}{5}$  to  $4\frac{1}{2}$  in head; teeth in villiform bands in jaws and on vomer; interorbital  $3\frac{3}{4}$  to  $4\frac{2}{3}$ , nearly level or very slightly elevated or only little convex medially; preopercle edge flexible or fimbriate. Gill rakers  $3+8$  or 9, lanceolate,  $2\frac{1}{4}$  in gill filaments, which  $\frac{1}{2}$  of eye.

Scales 63 to 70 in lateral line to caudal base and 12 to 14 more on latter; 5 to 7 above, 10 or 11 below, 25 to 32 predorsal forward to nostrils; 4 rows on cheek below eye to preopercle ridge; no auxiliary scales on head or predorsal; small scales on front of spinous dorsal, over caudal and paired fins. Scales with 7 to 10 basal radiating striae; 47 to 62 apical denticles, with 2 to 6 transverse series of basal elements; circuli very fine.

D. XI-I, 17, I to I, 19, I, second spine 2 to  $2\frac{1}{10}$  in head, first branched ray  $2\frac{1}{4}$  to  $2\frac{7}{8}$ ; A. III, 17, I or III, 18, I, first branched ray  $2\frac{1}{4}$  to  $3\frac{1}{5}$ ; caudal  $1\frac{1}{4}$  to  $1\frac{7}{8}$ , very slightly to moderately emarginate; least depth of caudal peduncle  $3\frac{3}{5}$  to 4; pectoral  $1\frac{2}{3}$  to  $1\frac{3}{4}$ ; ventral  $1\frac{4}{5}$  to 2.

Pale brown, little lighter below. Often narrow silvery white band from gill opening, axial to little inferior posteriorly, finally embracing lateral line at caudal peduncle. Along lateral line 8 or 9 deep brown or umber blotches, variable, but usually with some alternating similar blotches above and below costal region. Some small or obscure dark blotches on predorsal and head above. Iris yellowish to gray-brown. Dorsals with nearly transparent or pale membranes, with 6 or 8 horizontal dark streaks on spinous fin and obscurely on soft fin where mostly only as several dark spots on each ray. Caudal brownish, upper and lower edges dark. Other fins pale to whitish, with obscure dark brown blotch at pectoral base.

above angle. No gill rakers.  
Scales irregular, small, thin,  
elongate, cycloid, deciduous.  
Lateral line complete, single,  
without keel, tubes inconspicuous.  
Dorsal with long base, spines low  
and more or less subequal. Soft  
dorsal and anal opposite, finely  
scaled, connected with finlet  
behind and followed by 2 or 3 free  
finlets. Broad, short, free,  
narrowly triangular anal spine  
close before anal fin. No keels  
on caudal lobes basally. Caudal  
small, broad, robust, lobes wide.  
Pectoral small, low. Ventral close  
behind pectoral, short.

One species, in depths to  
125 fathoms.

134789

780

East Africa, Andamans, East Indies, Philippines, China, Australia.

A valued food fish. According to McCulloch it is more estuarine in Australia and reaches 305 mm. Bleeker's figure shows the caudal but very slightly emarginate and without a large dark basal pectoral blotch.

Concerning Sillago burrus Castelnau says: "burrus is only known by a drawing, and Dr. Günther has very properly neglected it in his catalogue. I am inclined to believe that it is simply maculata, as it appears principally to differ from this by the absence of the longitudinal streak which may have been forgotten by the draftsman".

Sillago gracilis shows: Depth 5; head  $3\frac{2}{3}$ . Snout  $2\frac{1}{3}$  in head; eye  $3\frac{1}{8}$ ; maxillary  $2\frac{2}{5}$ ; D. AI, I, 33 (description gives 22 soft rays); A, I, 23 (22 in description). Caudal truncate. In description color brilliant yellowish red, with a silvery lateral band, and three rows of distant black spots - one on the silvery band, one between that and the back, and one on the summit of the back. Fins pale, unspotted. Length 76 mm.

Sillago aeolus Jordan and Evermann is also likely another synonym. The original description says: "head naked, except on cheek, where there are about two rows of large scales" though the figure clearly shows 4 rows below the eye to the preopercle ridge.

9118 to 9120, 21188. Catbalogan, Samar. April 15, 1908. Length 75 to 185 mm.

22446. Cavite market. June 15, 1908. Length 84 mm.

7836. Cebu market. April 7, 1908. Length 203 mm.

8048, 8049. Manila market. March 18, 1908. Length 123 to 126 mm.

1 example. Manila harbor. March 16, 1908. Length 51 mm.

22006. Mariveles Bay, Luzon. January 27, 1909. Length 121 mm.

19515. Ragay River tidewater, Luzon. March 10, 1909. Length mm.

19419. Sorsogon market. March 12, 1909. Length 120 mm.

3 examples. Verde del Sur Island, Palawan reef sand flat. April 6, 1909.  
Length 83 to 104 mm.

369

Escolar violaceus (J. H. Bean)

Thyrsopterus violaceus J. H. Bean, Proc.  
U. S. Nat. Mus., vol. , (1887) p. 513,

(type locality, Le Have Bank). —

Goode and Bean, Oceanic Ichth., (1895)

pp. 195, 519, pl. , fig. 209 (type). —

Jordan and Evermann, Bull. U. S. Nat. Mus.,  
no. 47, pt. 3, (1898) p. 2843, (reference).

Bipinnula violacea Jordan and  
Evermann, Bull. U. S. Nat. Mus., no. 47,  
pt. 1, 1896, p. 878, (copied).

Thyrsoites violaceus  
Garman, Mem. Mus. Comp. Zool.,  
vol. 24, p. 384, 1899 (reference).

? Thyrsoites niger Poey, Enumerat. Pesc.  
Cub., (1875) p. 74, (type locality, Havana,  
Cuba) (fragment).

Depth 9; head  $3\frac{7}{8}$ , width  $4\frac{3}{4}$ .  
 Snout 2 in head from snout tip;  
 eye  $7\frac{2}{5}$ , 4 in snout,  $1\frac{1}{8}$  in  
 interorbital; maxillary reaches  
 eye, expansion  $1\frac{3}{4}$  in eye, length  
 $1\frac{7}{8}$  in head from snout tip; 3  
 large upper front alternating fangs  
 in front of upper jaw, followed  
 by 13 or 14 on each side, 13 on  
 each ramus of mandible; no  
 teeth on tongue or palate; short  
 groove obliquely down from  
 lower hind maxillary end;  
 interorbital  $6\frac{1}{2}$ , low, level, with  
 deep median concave depression,  
 extended forward on snout and  
 posteriorly on occiput. Gill rakers  
 as very few rudimentary, short,  
 minute points; gill filaments  
 $1\frac{1}{2}$  in eye.

Scales about 275 along lateral  
 line to caudal base; tubercles 144 in

134789

782

Cat. Fishes Mus. Tokyo, 1897, p. 46. - JORDAN and SNYDER, Proc. U.S. Nat. Mus., vol. 23, 1900, p. 369 (Tokyo), p. 758 (Yokohama; Tokyo); vol. 24, 1902, p. 487 (Hakodate, Matsushima, Tokyo, Misaki, Niigata, Tsuruga, Wakanoura, Hiroshima, Onomichi, Kawatana, Hakata, Nagasaki). - SMITH and POPL, Proc. U.S. Nat. Mus., vol. 31, 1906, p. 478 (Kochi). - FRANZ, Abh. Bayer. Akad. Wiss., Math.-phys. Kl., vol. 4, Suppl. vol. 1, 1910, p. 83 (Yokohama; Misaki). - JORDAN and THOMPSON, Mem. Carnegie Mus., vol. 6, No. 4, Sept. 1914, p. 260 (Osaka; Shimonoseki). - FOWLER and BEAN, Proc. U.S. Nat. Mus., vol. 62, 1922, p. 69 (Takao). - JORDAN and HUBBS, Mem. Carnegie Mus., vol. 10, No. 2, June 27, 1925, p. 248 (Osaka, Tokyo, Kobe, Toba, Mikawa Bay, Toyana, Misaki, Miyazu, Noo, Fukien). - FOWLER, Proc. Acad. Nat. Sci. Philadelphia, 1929 (1930) p. 654 (Tokyo).

Depth  $5\frac{1}{2}$  to  $5\frac{3}{5}$ ; head  $3\frac{3}{5}$  to  $4\frac{1}{3}$ , width 2 to  $2\frac{1}{8}$ . Snout  $2\frac{2}{5}$  to  $2\frac{1}{2}$  in head; eye  $4\frac{1}{5}$  to 5,  $1\frac{4}{5}$  to  $2\frac{1}{5}$  in snout,  $1\frac{1}{5}$  to  $1\frac{1}{3}$  in inter-orbital; maxillary reaches  $1\frac{2}{3}$  ~~in inter-orbital~~ to  $1\frac{3}{4}$  in snout; length  $4\frac{1}{5}$  to  $4\frac{3}{5}$  in head; teeth villiform, in bands in jaws and on vomer; interorbital 4 to  $4\frac{1}{3}$ , nearly level; preopercle edge slightly roughened. Gill rakers 4 + 10, lanceolate,  $\frac{1}{4}$  in gill filaments, which  $1\frac{2}{3}$  in eye.

Scales 68 to 70 in lateral line to caudal base and 9 to 13 more on latter; 3 or 4 above, 10 below, 21 to 26 predorsal forward to last fourth in antero-nasal part of snout; 2 rows on cheek below eye to preopercle ridge; fins all with more or less fine scales, most numerous on caudal basally. Scales with 5 or 6 basal radiating striae; 49 to 70 apical denticles, with 3 or 4 transverse series of basal elements; circuli fine.

lateral line to caudal base; 23 scales above, 25 below, 130 predorsal forward well to front of snout; 38 scales obliquely down over cheek from lower eye edge to front lower preopercle edge. Scales with 25 basal and 25 apical circuli, complete, fine.

D. XX - III,  $17 + 2$ , third spine  $4\frac{4}{5}$  in total head length, first branched ray  $3\frac{3}{5}$ ; A. I - III,  $14 + 3$ , first branched ray  $3\frac{1}{2}$ ; caudal  $2\frac{1}{2}$ , forked; least depth of caudal peduncle  $6\frac{3}{4}$ ; pectoral  $2\frac{9}{10}$ , rays II, 11; ventral I, 5, fin  $7\frac{7}{8}$  in total head length.

Largely uniform brown. Membrane of spinous dorsal blackish brown. Ventral blackish brown. Inside gill opening and mouth brown. Iris brown.

134789

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5.0. pure

Depth  $6\frac{1}{3}$  to  $6\frac{3}{5}$ ; head  $3\frac{4}{5}$  to  $3\frac{7}{8}$ , width  $2\frac{1}{5}$  to  $2\frac{1}{4}$ . Snout  $2\frac{1}{4}$  to  $2\frac{1}{3}$  in head; eye  $5\frac{1}{2}$  to  $6\frac{1}{8}$ ,  $2\frac{2}{5}$  in snout,  $1\frac{1}{4}$  to  $1\frac{1}{3}$  in inter-orbital; maxillary reaches  $1\frac{7}{8}$  to 2 in snout, length  $4\frac{2}{3}$  to  $4\frac{3}{4}$  in head; teeth villiform, in broad bands in jaws and on vomer; interorbital  $4\frac{1}{4}$  to  $4\frac{7}{8}$ , slightly elevated and slightly convex; preopercle edge rough or weakly jagged. Gill rakers  $2+7$ , short, strong, lanceolate,  $2\frac{1}{2}$  in gill filaments, which  $1\frac{1}{4}$  in eye.

Scales 83 to 88 counted along lateral line to caudal base and 10 more on latter; tubular scales 80 or 81 in lateral line to caudal base and 10 to 12 more on latter; 7 scales above lateral line, 12 or 13 below, 43 or 44 predorsal forward to last third of antero-nasal region of snout; 4 rows on cheek below eye. Scales with 6 basal radiating striae; 42 to 47 apical denticles, with 4 to 6 transverse series of basal elements; circuli fine.

D. XII-I, 21, I to I, 23, I, second spine  $1\frac{3}{4}$  to  $1\frac{4}{5}$  in head, first ray  $2\frac{3}{4}$  to  $2\frac{2}{3}$ ; A. III, 22, I to III, 25, I, first branched ray  $2\frac{7}{8}$  to  $3\frac{1}{10}$ ; caudal  $1\frac{3}{5}$  to  $1\frac{4}{5}$ , obliquely truncate, though upper rays slightly longer; least depth of caudal peduncle  $4\frac{7}{8}$  to  $5\frac{1}{8}$ ; pectoral  $1\frac{3}{4}$ ; ventral  $1\frac{3}{4}$ .

Dull brown on back and above, lower surface paler. Each scale of back with vertical streak made up of darker brown dots as seen under a lens. Iris slate gray, narrow golden circle around pupil. Upper lip largely brown, like head above, front and lower edge pale or whitish like lower lip. Narrow gray slate ill-defined axial band from shoulder girdle below lateral line but embracing lateral line on caudal peduncle to caudal base. Fins largely transparent, membranes of spinous dorsal sprinkled with blackish or dusky brown over greater terminal portions. Each ray of soft dorsal with 6 dark or blackish ill-defined spots. Caudal and pectoral brownish above, other fins whitish.

Western North Atlantic at Le  
Have Bank. Goode and Bean's  
figure, said to have been based on  
the type (the above described  
specimen) fails to show the anal  
spine and the nostril is wrongly  
indicated. The type has the front  
nostril as a simple pore an eye  
diameter before the eye and the  
hind nostril as a short vertical  
slit close before the eye. The hind  
edge of the preopercle is also  
more posterior in the type, besides  
the body is more slender.

U. S. N. M., no. 39287. Le Have Bank.  
Capt. Thomas Thompson. Length  
1158 mm. Type of Thyrsoitops  
violaceus.

Follow Incl Caps

134789

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Known from Tokyo Bay. Distinguished by its long slender body, small scales, truncate caudal and lack of any conspicuous large dark blotches

22588 U.S.N.M. Kanagawa. Japanese Government. Length, 188 mm.

49803 U.S.N.M. Tokyo market. Albatross collection. Length 165 mm.

71352 U.S.N.M. Tokyo market. Albatross collection. Length 266 mm.

Sillago ciliata Cuvier

Sillago ciliata CUVIER, Hist. Nat. Poiss., vol. 3, 1829, p. 415.

Southern Seas (Peron). - VALENCIENNES, Règne Animal Cuvier, Ill. ed.,

Poiss., 1839, pl. 13, fig. 2. - GÜNTHER, Cat. Fish. Brit. Mus., vol.

2, 1860, p. 245 (Tasmania, Australia, Port Jackson, Cape York). -

GILL, Proc. Acad. Nat. Sci. Philadelphia, 1860, p. 504 (compiled). -

KNER, Reise Novara, Fische, 1855, p. 127 (Sydney). - STEINDACHNER,

Sitz. Ber. Akad. Wiss. Wien Math.-nat. Kl., vol. 53, pt. 1, 1866,

1866 p. 443 (Port Jackson). - CASTELNAU, Proc. Zool. Acclimat. Soc. Vic-

toria, vol. 2, 1873, p. 113 (Noumea, New Caledonia); - ALLEYNE and

MACLEAY, Proc. Linn. Soc. New South Wales, vol. 1, 1876, p. 279

(Cape York; Percy Islands). - KLUFZINGER, Sitz. Ber. Akad. Wiss.

Wien, Math.-nat. Kl., vol. 80, pt. 1, 1879, p. 369 (Port Dennison; C.

Cleveland Bay). - SCHMELTZ, Cat. Mus. Godeffroy, No. 7, 1879, p. 44

(Queensland). - GÜNTHER, Rep. Voy. Challenger, vol. 1, 1880, p. 42

(Somerset, Cape York). - MACLEAY, Proc. Linn. Soc. New South Wales,

vol. 5, pt. 4, 1881, p. 567 (North Australia, Torres Straits, Cape

York). - WOODS, Fishes New South Wales, 1882, p. 65, pl. 24. - PÖHL,

Cat. Mus. Godeffroy, No. 9, 1884, p. 32 ("East Indies"). - OGILBY,

Cat. Fish. New South Wales, 1886, p. 31. - MC COY, Prodromus Zool.

Genus Ruvettus Cocco

Ruvettus Cocco, Giorn. Sci. Sicilia,  
vol. 17, p. 21, 1829. (Type Ruvettus  
pretiosus Cocco, monotypic.)

Aplurus Lowe, Trans. Zool. Soc.  
London, vol. 2, p. 180, 1841. (Type  
Tetragonurus simplex Lowe,  
monotypic.)

Acanthoderma Cantraine, Journ.  
Acad. Sci. Belle-Lettres, Bruxelles,  
vol. 10, pp. 1-19, 1837. (Type  
Acanthoderma temminckii  
Cantraine, monotypic.)

Body somewhat compressed, elongately ellipsoid. Belly beeled and tail without beels. Head moderate, compressed, attenuated. Snout pointed. Eye rounded, little advanced from middle in head length. Mouth little inclined, mandible protruding. Maxillary reaches below eye. Teeth moderate, in pairs, on vomer and palatines. Nostrils well separated, posterior nearer eye. Interorbital low. Gill rakers reduced small spines. Scales minute, cycloid, and with numerous scattered spiny plates or tubercles. Skin on body with fine mucous pores, which also on snout and edges of opercles. Lateral line single,

above, 22 below, 8 rows on cheeks,  
 preopercle flange scaleless; predorsal  
 scales extend forward  $\frac{1}{2}$  in eye. Front  
 lateral line tubes bifurcate.

D. II, 12 or 13, spines slender, fourth  
 and fifth longest, usually nearly  $\frac{1}{2}$   
 head, sometimes  $\frac{1}{3}$ , first not longer  
 than last spine; A. III, 10.

Brownish, lighter or darker, with  
 numerous narrow blue and yellow  
 longitudinal streaks, back often with  
 bluish, bronzy or violaceous sheen.  
 Dorsal, anal and ventral grayish or  
 violaceous. Pectoral axil often dark.  
 Reaches 300 mm. (Barnard.)

South Africa, <sup>Madagascar,</sup> Madagascar.

often obsolete. First dorsal of 13 to 15 spines, received in groove. Second dorsal higher, base much shorter than first. Anal like second dorsal, opposite and both fins followed by 2 detached finlets. ~~Other~~ Caudal moderate, forked, upper lobe often longer. Pectoral short, low, rays 15. Ventral well developed, close behind pectoral, <sup>with</sup> rays 5 preceded by slender spine.

Apparently a single wide ranging species, the several nominal forms evidently conditions of sex and age. The flesh is used as food and the oil has been sought as a purgative. In depths to 400 fathoms.

no. 4, 1918, p. 84 (references).

Caranthus emarginatus Barnard, Ann.  
South African Mus., vol. 21, pt. 2, 1927, p.  
722 (Salisbury ~~Bay~~, Table, False, Algoa  
Bay).

Scathurus graecus (not Valenciennes) Clark,  
Sci. Res. Scotin., vol. 4, 1915, p. 396.

Depth  $2\frac{1}{5}$  to  $2\frac{1}{2}$ ; head  $3\frac{1}{3}$ , profile  
nearly straight to above eye, then rises  
more or less abruptly to rather  
strongly convex nape, at least with  
age when also rather prominent bulge  
before orbit. Eye  $3\frac{1}{2}$  to 4 in head, slightly  
greater than snout in young to equal with  
age,  $1\frac{1}{5}$  to  $1\frac{1}{2}$  in interorbital; teeth  
numerous, fine, inner series very fine;  
preorbital depth  $\frac{1}{2}$  eye diameter, lower  
edge deeply notched, exposing maxillary.  
Lower gill rakers 15 on first arch.

Scales 80 to 85 in lateral line; 13

Ruvettus pretiosus Cocco

Ruvettus pretiosus Cocco, Giorn. Sci.  
Sicilia, vol. 17, (1829) p. 21, (type  
locality, Messina). — ~~Bonaparte,~~  
~~Fauna Italica, Pesc., pt.,~~

~~Lac.~~

- Goode and Bean, Oceanic Ichth.,  
1895 p. 196, pl. 57, fig. 210 (Georges  
Bank N. lat.  $41^{\circ}$  W. long.  $67^{\circ}$ ). —  
Waite, Mem. Australian Mus., No. 3,  
(1899) p. 539, (South Pacific). — (Garrman,  
Mem. Mus. Comp. Zool., vol. 24, p. 384, 1899 (reference)).  
— Jordan and Snyder, Annot. Zool.  
Japan., vol. 3, (1901) p. 65, (Yokohama).  
— Waite, Rec. Austral. Mus., vol.  
5, (1903) p. 3, (Paanopa, Ocean Island,  
Gilbert Group). — Snyder, Bull.  
U. S. Fish Comm., vol. 22, 1902 (1904),  
p. 523, (Honolulu). — Jordan and  
Evermann, Bull. U. S. Fish Comm.,  
vol. 23, pt. 1, (1903 (1905)) p. 177, fig. 5  
(67) (Honolulu).  
— Brauer, Deutsch. Tiefsee Exped. Valdivia, vol. 15,  
p. 397, 1904 (reference).

- Barnard, Ann. South Afric. Mus., vol. 21, pt. 2, p. 787, October 1927 (off Table Bay; Delagoa Bay).
- Fowler, Mem. Bishop Mus., vol. 10, (1928) p. 135, pl. 10 (Honolulu).
- Ribeiro, Arch. Mus. nac. Rio Janeiro, vol. 17, (Tempylidae), p. 6, 1915 (Brazil).

Tetragomus simplex Lowe, Proc. Zool. Soc. London, (1833) p. 143, (type locality, Madeira).

Rovetus temminckii Cantraine, Giorn. Sci. Lett. Pisa, ~~vol. 10,~~ <sup>vol. 10,</sup> pl. 1, 1835 (type locality, Mediterranean).

Thyrsites acanthoderma Lowe, Proc. Zool. Soc. London, (1839) p. 78, (type locality, Madeira).

Girellipiscis, 187.

*elevatus*, 190.

Girellops, 187, 188, 196.

*fimbriatus*, 196.

*nebulosus*, 196.

*glacus*, Sciaena, 398.

*glauca*, Sciaena, 398.

*glaucus*, Johnius, 398.

*Sciaena*, 398.

*gliphodon*, Lethrinus, 58.

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*glyphodon*, Lethrinus, 58, 59.

*globiceps*, Chrysophrys, 148.

*Sargus*, 148.

*Sparus*, 147, 148.

*Gnathodentex*, 69, 129.

*suolineatus*, 76.

*goldmani*, *Argyrosomus*, 377, <sup>378,</sup> 387.

*Corvina*, 378.

*Johnius*, 387.

*Otolithus*, 387.

*Pseudosciaena*, 387.

*goldmanni*, *Corvina*, 387.

*Johnius*, 372, 387.

*Sciaena*, 387.

*goma*, *Johnius*, 372, 374.

*Sciaena*, 374.

(378)

Thyrustes scholaris Joy, Mem.  
Hist. Nat. Cuba, vol. I, (1851) p. 372,  
pl. 32, fig. 1, (type locality, Havana).

Ruvettus tydemani Weber, Siboga  
Exped., vol. 65, (1913) p. 401, pl. 8,  
fig. 4, (type locality, Brinangka  
Island, in 250 m.).

Ruvettus delagoenses Gilchrist  
and Von Bonde, Fisher. Marine  
Biol. Surv. South Africa, Rep. no.  
3, no. 7, p. 16, 1922 (1924) (type  
locality, off Delagoa Bay, in  
275 fathoms).

Follow-Incl Caps  
Loaded

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672

China, Japan. Reported from Cavite and Luzon by Elera, though otherwise not known from the Philippines. None of my examples show the dark spot on the opercle as in Jordan and Thompson's figure, certainly greatly accentuated as compared with the type. Sciaena ogiwaru, based on a specimen 235 mm. measured to caudal base, seems to be synonymous.

62378 U.S.N.M. Port Arthur, Manchuria. J.F. Abbott. Length 203 to 244 mm. 7 examples. As Corvula argentata. Some show median caudal rays extended as points, so fin almost long as head.

67330 U.S.N.M. Port Arthur. Jordan and Snyder. Length 290 mm. Type of Sciaena manchuria.

85873 U.S.N.M. China. A. de C. Soperby. Length 99 to 128 mm. (4) examples. These evidently in formalin, have the silvery photophore like spots on the ventral surface of the trunk and tail as in Collichthys lucidus, these showing through the scales and in 12 transverse series across the belly, but as they narrow posteriorly only 4 rows across above the anal base.

86661 U.S.N.M. Plankton, China. C. Ping. Length 315 mm. Silvery or gray photophore like spots showing through the scale rows all along the back and upper sides.

6856. Bureau of Fisheries. Kowloon. October 22, 1909. Length 200 mm.

Genus Johnius Bloch ← 130

Johnius BLOCH, Naturg. Ausländ. Fische, pt. 7, 1793, p. 132. (Type

Johnius carutta BLOCH, designated by GILL, Proc. Acad. Nat. Sci. Philadelphia, 1861, p. 85.)

Corvina CUVIER, Règne Animal, ed. 2, vol. 2, 1829, p. 173. (Type Corvina

nigra CUVIER = Sciaena umbra LINNAEUS, designated by GILL, Proc. Acad. Nat. Sci. Philadelphia, 1861, p. 85.)

379

Depth 6; head 4. Snout  $3\frac{1}{4}$  in head from snout tip; eye  $5, 1\frac{1}{2}$  in snout; maxillary reaches opposite hind eye edge, length  $1\frac{7}{8}$  in head from snout tip.

Body covered with well separated bony plates, each armed with spines. No lateral line.

D. XV - II,  $16 + 2$ , spines all much lower than soft fin, received in groove, lobe of second dorsal  $2\frac{7}{8}$  in head; A. II,  $15 + 2$ , like second dorsal, opposite; caudal strongly forked; pectoral rays 15, fin  $1\frac{4}{5}$  in head; ventral  $3\frac{1}{6}$ , rays I, 5.

Blackish brown above, below dull white, bony plates whitish. Length 1824 mm. (Goode and Bean.)

~~Circumtropical to depths of 400 fathoms.~~

South Africa, Portuguese  
East Africa, East Indies, <sup>Japan,</sup> Melanesia,  
Polynesia, Hawaii. Also in the  
Atlantic, Mediterranean and  
Caribbean Seas. Found in depths  
to 400 fathoms.

Spondyliotoma emarginata (Cuvier)

Cantharus emarginatus Cuvier, Hist. nat. Poiss., vol. 6, 1831, p. 338. Cape of Good Hope.  $\frac{1}{m}$   
Pappe, Synopsis Edible Fishes Cape, 1853, p. 22 (Table Bay, several bays to east of Cape).  $\frac{1}{m}$  Günther, Cat. Fishes British Mus., vol. 1, 1859, p. 416 (no locality).  $\frac{1}{m}$  Bleeker, Naturk. Tijdschr. Nederl. Indië, vol. 21, 1860, p. (50, 52) 60 (Cape of Good Hope).  $\frac{1}{m}$   
Kner, Reise Novara, Fische, 1865, p. 73 (Cape).  $\frac{1}{2}$  Bleeker, Verhandel. Akad. Wetensch. Amsterdam, vol. 18, no. 3, 1871, p. 1 (Mauritius).  $\frac{1}{m}$   
Vanwyk, Hist. nat. Madagascar, Poiss., 1871, p. 514 (name only).  $\frac{1}{m}$  Lempe, Deutsche Nordpolar-Exped., Fische, vol. 15, pt. 2, 1914, p. 234 (Simonstown).  $\frac{1}{m}$  Gilchrist and Thompson, Marine Biolog. Rep. South Africa, no. 2, 1914, p. 94 (habits); Ann. Durban Mus., vol. 1, pt. 4, 1917, p. 35-7 (references).  $\frac{1}{m}$   
Thompson, Marine Biolog. Rep. South Africa,

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Genus Hesiarchus Johnson

Hesiarchus Johnson, Proc. Zool. Soc.  
London, ~~1962~~ p. 173, <sup>1962</sup> (Type Hesiarchus  
nasutus Johnson, monotypic.)

Body long, slender, compressed,  
sides flattened. Caudal peduncle  
compressed. Tail  $2\frac{1}{3}$  in trunk.  
Head long, narrowly pointed, compressed.  
Snout long, conic, ends in fleshy  
point. Eye high, slightly postmedian  
in head. Mouth large, lower jaw  
protruded, ends in fleshy point  
in front. Maxillary not quite  
reaches eye. Teeth uniserial in  
jaws, compressed, slender, pointed,  
with 4 barbed canines or fangs  
above in front. No teeth on  
palate or tongue. Front nostril  
simple pore about eye diameter

before eye, hind one short vertical slit midway between front one and front of eye. Preopercle with only oblique short free edge, well ~~developed~~ below level of eye. Gill rakers few minute rudimentary irregular points. Branchiostegals 7. Scales minute. Lateral line well marked, without keel. Dorsal with 21 subequal low spines, slender, firm. Soft dorsal and anal opposite, similar, without finlets, with 2 flattened spines before anal. Caudal forked, small. Pectoral placed below level of eye, small. Ventral small, close behind ventral.

One species. In depths to 300 fathoms.

richardsonii, 13, 20, 28.  
 rostratus, 8, 11.  
 scoparius, 34.  
 semicinctus, 23, 39, 41.  
 sordidus, 58, 59.  
 striatus, 7, 50.  
 variegatus, 6, 19, 20, 23, 39.  
 viridis, 5.  
 waigiensis, 61.  
 xanthochilus, 7, 51.  
 xanthopterus, 12.  
 xanthotaenia, 49.

Lethrus, 4.

Lethrynus esculentis, 34.

genivittatus, 42.  
 haematopterus, 44.

Letrinus harak, 21.

leutjanus, 58.

mahsenoides, 46.

nematacanthus, 12.

ramak, 48.

richardsonii, 28.

leuciscus, Otolithus, 376.

leucogrammicus, Dipterygonotus, 346.

Emmelichthys, 346.

Erythrichthys, 346.

leutjan, Bodianus, 57, 59.

leutjanus, Lethrinus, 7, 23, 57, 59.

Letrinus, 58.

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Hesiarchus nasutus Johnson

Hesiarchus nasutus Johnson, Proc. Zool.  
Soc. London, ~~1862~~<sup>1862</sup>, p. 173, pl. 2<sup>2</sup>, (type  
locality, Madeira). — Steindachner,  
Sitzb. Akad. Wiss. Wien, vol. 56, pt.  
1, ~~1867~~<sup>1867</sup>, p. 705, pl. 9, figs. 1-2 (skull)  
(Teneriffe). — Günther, Rep. Voy.  
Challenger, vol. 22, ~~1887~~<sup>1887</sup>, p. 37, 1887  
(Madeira). — Vinciguerra, Atti  
Soc. Ital. Sci. Nat., vol. 34, ~~1872~~<sup>1872</sup>, p.  
315<sup>1872</sup> (Canaries). — Goode and Bean,  
Oceanic Ichth., ~~1895~~<sup>1895</sup>, p. 197, fig.  
1895 (copied). — Garman, Mem. Mus.  
Comp. Zool., vol. 24, p. 384, 1899  
(reference). — Brauer, Deutsch.  
Tiefsee Exped. Valdivia, vol. 15, p. 397,  
1904 (reference).

Prometheus paradoxus Capello, Jorn.  
Sci. Math. Phys. Nat. Lisboa, vol.  
 3, (1868) p. 260, pl. 4, fig. 5, (type  
 locality, Portugal).

Mesiarchus paradoxus Capello, Jorn.  
Sci. Math. Phys. Nat. Lisboa, vol.  
 2, (1869) p. 154, (off Lisbon and  
 Setubal); vol. 46, 1881, p. 16.

latidens, 135.  
latifrons, 39.  
lentjan, 67.  
leutjanus, 7, 23, 57, 59.  
longirostris, 8.  
maculatus, 28, 30.  
mahsena, 7, 53, 54, 55.  
mahsenoides, 6, 35, 39, 45, 46.  
mansenoides, 45.  
margaritifer, 5.  
masena, 54.  
mashena, 46.  
mashsenoides, 46.  
microdon, 7, 41, 61.  
miniatus, 6, 8, 19, 20, 42, 43, 61.  
moensi, 19.  
moensii, 18.  
nebulosus, 6, 33.  
nebulosus var. chumchum, 34.  
nebulosus var. ochrolineata, 34.  
nematacanthus, 4, 6, 11, 63.  
olivaceus, 7, 40, 61.  
opercularis, 33.  
ornatus, 28, 30, 34, 36, 49.  
papuensis, 21.  
punctulatus, 6, 43.  
ramak, 7, 9, 47, 63.  
regius, 5.  
reticulatus, 6, 18, 19.  
rhodopterus, 21.  
richardsoni, 28, 45.

Depth 11; head  $3\frac{1}{5}$ , width  $6\frac{1}{5}$ .

Snout 2 in head from snout tip; eye 7,  $3\frac{3}{5}$  in snout, 1 in interorbital; maxillary reaches  $\frac{9}{10}$  to eye, expansion  $1\frac{3}{4}$  in eye, length  $2\frac{1}{10}$  in head from snout tip, with short, oblique groove down from hind end; teeth as 4 large front barbed upper canines followed by 7 or 8 small flat erect teeth on each side, 8 or 9 below each side also erect; interorbital  $9\frac{1}{2}$ , low, depressed, with deep groove medially extended on snout and occiput. Gill rakers as row of low, uneven, minute points; gill filaments  $2\frac{1}{2}$  in eye.

Scales minute, imperfect. Lateral line prominent, axial, complete. Opercle with minute scales and in front above cluster of fine

indicus, Crenidens, 201.

Kyphosus, 206.

Mullus, 287.

Parupeneus, 288, 289.

Pemillepterus, 206.

Pimelepterus, 206, 208.

Pseudupeneus, 272, 287, 288.

Upeneoides, 288.

Upeneus, 287, 303.

Upenoides, 288.

Inermia, 344, 347.

vitta, 347.

vittata, 347.

inornata, Boopsidea, 169.

Boopsidea, 169.

insigne, Oplegnathus, 222.

Scarostoma, 217, 222.

insignis, Exocallus, 180.

Oplegnathus, 217, 222.

insignus, Oplegnathus, 222.

insularis, 429.

insulindicus, Lethrinus, 46.

Iredalella, 187.

cyanea, 188.

iris, Labrus, 79.

Pentapus, 71.

isacanthus, Dentex, 89.

Nemipterus, 89.

Synagris, 85, 89.

weak radiating striae.

D. XXI - III, 21, second spine  $5\frac{4}{5}$  in total head length, first branched ray  $4\frac{2}{3}$ ; A. II - I, 19, first branched ray (broken)  $5\frac{1}{8}$ ; caudal  $2\frac{1}{4}$ , widely forked; least depth of caudal peduncle  $10\frac{3}{5}$ ; pectoral 3, rays I, 12; ventral I, 4, fin  $7\frac{3}{4}$  in total head length.

Dark brown generally. Iris gray brown. Fins more or less blackish brown to gray black or blackish. Inside gill opening dark brown, branchiostegal border blackish.

Eastern North Atlantic.

U. S. N. M., no. 89922. h. Lat.  $33^{\circ}$   
W. long.  $64^{\circ}$  . Mus. Comp. Zool.  
Length 310 mm.

hottentotus, Sargus, 178.  
177,  
hottentottus, Sargus, 178.

Hypeneichthys, 259.

Hypeneoides, 318.

Hypeneus, 318.

*a* flayolineatus, 264.

vittatus, 331, 334.

hypostoma, Corvina, 397.

*a* Johnius, 397.

Sciaena, 397.

hypostomus, Johnius, 373, 397.

hypselognathus, Dentex, 96.

*a* Synagris, 86, 96.

hypselopterus, Lethrinus, 6, 14, 27, 54, 55.

hypselosoma, Synagris, 123.

hypselosomus, Dentex, 123.

Ichthyorhamphos, 217.

*a* pappei, 217, 218.

ihama, Silago, 418.

ihare, Sciaena, 395.

immaculatus, Upeneus, 305.

imperialis, Lethrinus, 5.

Incisidens, 187.

*a* simplex, 192.

indica, Monotaxis, 134, 135.

*a* Sciaena, 408, 410, 414.

Genus Epinnula Poey

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Epinnula Poey, Mem. Hist. Nat.

Cuba, vol. 1, ~~page 36~~ p. 36 9<sup>1854</sup> Type

Epinnula magistralis Poey, monotypic.

Body elongate, fusiform, tail to caudal base but little less than trunk. Head rather large, pointed, compressed. <sup>Snout conic.</sup> Eye large, high, slightly premedian. Mouth large, lower jaw well protruding in front. Maxillary reaches below eye, preorbital very narrow above, expansion moderate. Teeth uniserial in jaws and on palatines, few enlarged canines anteriorly, especially above. Interorbital low, level. Gill rakers minute

rudimentary denticles, except small lanceolate one in angle of gill arch. Branchiostegals 7. Pyloric caeca 10. Scales minute, very deciduous. Fins all more or less scaly. No keels on tail. Lateral line high, with lower section starting above pectoral, falls low and then slopes to caudal base. Dorsal with rather low spines, separated from soft fin, spines 15 or 16 and branched rays 15 or 16. Anal like soft dorsal, branched rays 13 or 14. Caudal rather large, forked. Caudal peduncle moderate, constricted. Pectoral low, rather short, ventral inserted little behind pectoral base. Coloration

FOWLER - Incl Caps  
Loaded

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711

Johnius vogleri SEALE, Philippine Journ. Sci., vol. 5, No. 4, Oct. 1910,  
p. 280 (Sandakan, Borneo).

Sciaena parva GILCHRIST and THOMPSON, Ann. South Afric. Mus., vol. 6,  
1908-1911, p. 183 (in 24 fathoms South Head Tugela River, North by  
West  $4\frac{1}{2}$  miles); Ann. Durban Mus., vol. 1, No. 4, 1917, p. 350 (com-  
piled).

Johnius parvus FOWLER, Proc. Acad. Nat. Sci. Philadelphia, 1925, p. 247  
(Delagoa Bay; Natal).

Sciaena marleyi NORMAN, Ann. Mag. Nat. Hist., ser. 9, vol. 9, 1922, p.  
319, (Natal); p. 321, 1923.

Johnius marleyi FOWLER, Proc. Acad. Nat. Sci. Philadelphia, 1925, p. 247  
(Natal).

Johnius diacanthus (part) FOWLER, Journ. Bombay Nat. Hist. Soc., vol. 30,  
No. 4, 1926, p. 9 (lapsus).

Depth  $2\frac{4}{5}$  to  $3\frac{1}{2}$ ; head 3 to  $3\frac{1}{4}$ , width  $1\frac{4}{5}$  to 2. Snout  $3\frac{1}{4}$   
to  $3\frac{2}{3}$  in head; eye  $4\frac{1}{8}$  to  $4\frac{3}{4}$ ,  $1\frac{1}{5}$  to  $1\frac{2}{5}$  in snout, equals interorbital;  
maxillary reaches  $\frac{1}{2}$  in eye or to hind eye edge, expansion  $1\frac{2}{3}$  in eye, length  
from snout tip  $2\frac{1}{6}$  to  $2\frac{2}{5}$  in head; 6 pits at chin; teeth fine, in bands in  
jaws, outer row enlarged above and inner below and former exposed with closed  
mouth; interorbital  $3\frac{1}{8}$  to  $4\frac{1}{3}$ , broadly convex; preopercle edge denticulate.  
Gill rakers 4 to 8 + 9 to 18, lanceolate, short, rudimentary tubercles greatly  
less than gill filaments.

Scales 46 to 50 along above lateral line to caudal base and 5 or 6  
more over caudal base; tubular scales 45 to 47 in lateral line to caudal base  
and 7 or 8 more out over fin; 5 or 6 above, 7 to 9 below, 24 to 26 predorsal;  
9 rows on cheek; anal entirely scaled. Scales with 9 to 16 basal radiating  
striae; 42 to 62 apical denticles, with 4 to 15 transverse series of basal  
elements; circuli very fine.

pale.

Apparently but a single species in the Caribbean and Cuba, besides one in South Africa.

### Analysis of species

a.<sup>1</sup> Soft dorsal rays 20 or 21; soft anal rays 18 or 19; lateral lines rather closely submarginal to body profiles. orientalis.

a.<sup>2</sup> Soft dorsal rays 15; soft anal rays 14; lateral lines rather well removed from edges of body. magistralis.

for  
lit

D. X, I, 27 to 30, I, third spine 2 to  $2\frac{1}{8}$  in head, first ray 3 to  $3\frac{1}{8}$ ; A. II, 7, I, second spine  $3\frac{1}{4}$  to  $3\frac{2}{3}$ , third ray 2 to  $2\frac{1}{8}$ ; caudal  $1\frac{1}{6}$  to  $1\frac{2}{5}$ , rounded behind with lower median rays longest; least depth 3 to  $3\frac{2}{5}$ ; pectoral  $1\frac{1}{3}$  to  $1\frac{1}{2}$ ; ventral  $1\frac{3}{5}$  to  $1\frac{4}{5}$ .

Drab gray on back and sides, below white. Opercle neutral to slate gray, diffuse marginally. Iris pale. Spinous dorsal slate gray. Soft dorsal and caudal pale brown, dusted with neutral gray marginally. Pectoral and anal soiled whitish. Slate gray blotch in pectoral axil just behind fin origin. Ventral whitish.

Arabia, Portuguese East Africa, South Africa, Mekran, Oman, India, East Indies, Philippines, China, Japan. I fail to find characters to maintain Otolithus vogleri Bleeker as a distinct species.

3652 (D. 5442). San Fernando Point Light, N.  $39^{\circ}$  (E.), 8.4 miles (N. Lat.  $16^{\circ}$   $30'$   $36''$ ; E. Long.  $120^{\circ}$   $11'$   $6''$ ). May 11, 1909. Length 205 mm.

71001 53001, 53002 A.N.S.P. Delagoa Bay, Portuguese East Africa. July, 1923.

□ H.W. Bell Marley. Length 100 to 175 mm. As Johnius parvus.

71001 53024 A.N.S.P. Natal coast. 1925. H.W. Bell Marley. Length 237 mm. This

□ and next two as Johnius vogleri.

71001 53051 A.N.S.P. Natal coast. 1927. H.W. Bell Marley. Length 155 mm.

71001 53073 A.N.S.P. Natal. 1925. H.W. Bell Marley. Length 170 mm.

71001 53125 to 53127 A.N.S.P. Bombay, India. 1924. Prof. F. Hallberg. Purchased.

□ Length 122 to 210 mm.

Epinnula orientalis Gilchrist  
and Von Bonde

Epinnula orientalis Gilchrist and  
Von Bonde, Fisher. Marine Biol.  
S. Afr. (South Africa), Rep. no. 3, no. 7,  
p. 15, pl. 4, fig. 1, 1922 (1924)  
(type locality, off Natal Coast,  
157 fathoms; off Delagoa Bay, 275  
fathoms). — Barnard, Ann.  
South Afric. Mus., vol. 21, pt. 2, p.  
790, October 1927 (type).

[D. 5159.] Tinakta Island, Vulu  
Archipelago. February 21, 1908. Length

41 mm.

8685. Tuta Bay, Jolo. September 19, 1909. Length 39 mm.

22830. Samayon and Picamil Islands. September 27, 1909. Length 47 mm.

2 examples. Tigu Island, Bouro Island.

December 10, 1909. Length 34 to 39 mm.

1 example. Tomahu Island. December 11,  
1909. Length 48 mm.

1 example. Labuandata Bay, Gulf of  
Boni, Celebes. December 18, 1909. Length

38 mm.

12780. Limbe Strait, Celebes. November 10, 1909. Length 60 mm.

1 example. Telisse Island, north of

Celebes. November 9, 1909. Length 42 mm.

Depth 4; head  $3\frac{2}{5}$ . Snout  $2\frac{7}{8}$   
 in head from snout tip; eye  
 5,  $1\frac{4}{5}$  in snout; maxillary  
 reaches  $\frac{1}{2}$  in eye, expansion 2  
 in eye or three times wide as  
 infraorbital, length  $2\frac{1}{5}$  in  
 head from snout tip; teeth  
 well developed in front part  
 of jaws, smaller posteriorly;  
 interorbital low.

Scales minute, deciduous.  
 Vertical fins scaleless. Lateral  
 lines 2; dorsal section close  
 along fin bases of both dorsal  
 fins, ends at middle of  
 caudal peduncle; ventral  
 section extends down close behind  
 pectoral base, <sup>close</sup> along ventral  
 profile of body and slopes  
 upward on caudal basally to

base of middle ray; no branches.

D. XVI, 1, 21, eighth spine  $3\frac{1}{4}$  in total head length, first dorsal ray  $3\frac{1}{2}$ ; A. III, 19, first ray  $3\frac{1}{10}$ ; caudal  $1\frac{4}{5}$ , deeply emarginate, lobes pointed; least depth of caudal peduncle 5; pectoral  $2\frac{2}{5}$ , rays 14; ventral rays I, 5, fin 3 in total head.

Color uniform, first dorsal blackish. Length 235 mm.

(Gilchrist and Van Bonde)

South Africa. In view of the discrepancies of the description and figure given by Gilchrist and Van Bonde, when compared with Epinnula magistrata Poey they seem to indicate the South African fish may really only be the

young. Thus the description of E. orientalis gives 21 soft dorsal rays and the figure shows but 20, likewise the soft anal gives 19 but the figure shows but 18. According to the figures the lateral line is more closely marginal than in the American fish, the <sup>soft</sup> dorsal and anal without distinct anterior lobes and the ventral inserted behind the end of the pectoral.

Epinnula magistralis Poey

Epinnula magistralis Poey, Mem.  
 Hist. Nat. Cuba, vol. 1, ~~1851~~ p. 369,  
 pl. 32, figs. 3-4<sup>1851</sup> (type locality,  
 Havana). — Günther, Cat. Fish.  
 Brit. Mus., vol. 2, ~~1859~~ p. 349, 1860  
 (copied). — Gill, Proc. Acad.  
 Nat. Sci. Philadelphia, ~~1862~~ p.  
 126<sup>1862</sup> (name only). — Goode and  
Bean, Oceanic Ichth., ~~1878~~ p. 198,  
 pl. , fig. 211<sup>1895</sup> (~~1878~~ Caribbean  
 Sea). — Jordan and Evermann, Bull.  
 U. S. Nat. Mus., 20. 47, pt. 1, ~~1880~~ p. 880,  
<sup>1896</sup> (copied). — Garman, Mem. Mus.  
 Comp. Zool., vol. 24, p. 384, 1899.  
 (reference)

Scales 64 in lateral line to caudal base and 8 more on latter; 5 above, 10 below, 29 predorsal forward half way in antero-prenasal region of snout; 4 rows on cheek below eye to preopercle ridge; caudal base finely scaly and few small scales on membranes of other fins. Scales with 7 or 8 basal radiating striae; 87 to 97 apical denticles with 6 to 8 transverse series of basal elements; circuli fine.

D. XI-I, 17, I, third spine  $2\frac{1}{3}$  in head, first ray  $3\frac{1}{3}$ ; A. III, 18, I, first branched ray  $2\frac{9}{10}$ ; caudal  $1\frac{1}{2}$ , deeply emarginate or forked; least depth of caudal peduncle  $4\frac{1}{5}$ ; pectoral  $1\frac{7}{8}$ ; ventral  $2\frac{1}{8}$ .

Uniform brown, each row of scales, especially on back, with slightly paler median narrow streak. Iris yellowish brown, with slate black blotch above and below. Membranes of most fins transparent, dusky dots sprinkled on those of spinous dorsal and each dorsal ray with 4 or 5 clusters of dark dots.

New South Wales and Tasmania. The pale axial longitudinal band embracing the lateral line on the caudal peduncle hardly visible. This species is quite distinct from Sillago maculata, with which it was wrongly identified by Günther and Day. Its deeply emarginate tail and more numerous cheek scales will easily distinguish it.

59939 U.S.N.M. Off Lake Macquarie, New South Wales. D.G. Stead. Length 240 mm.

Sillago robusta Stead<sup>13</sup> known only from the unique holotype about

6-Pt.  
footnote

13 New Fishes of New South Wales, (1908, p. 7, pl. 2, (New South Wales). McCulloch, Zool. Res. Endeavour, vol. 1, pt. 1, Dec. 22, 1911, p. 60 (reference in key); Fish, New South Wales, ed. 2, 1927, p. 51.

150 mm. long is said to differ from Sillago bassensis in having its ventrals inserted below the origin of the first dorsal, whereas in Sillago bassensis the ventrals are inserted in advance of the first dorsal.

Depth  $4\frac{2}{3}$ ; head  $3\frac{1}{10}$ , width 3.

Snout  $2\frac{3}{4}$  in head from snout tip; eye  $4\frac{1}{3}$ ,  $1\frac{2}{3}$  in snout, equals interorbital; maxillary reaches  $\frac{1}{3}$  in eye, expansion  $2\frac{1}{2}$  in eye, length  $2\frac{1}{5}$  in head from snout tip; 3 large upper front canines anteriorly, followed by 14 to 19 teeth each side; 7 to 9 teeth each side below with median longest and anterior pair slightly enlarged; row of small pointed teeth on each palatine; interorbital  $4\frac{1}{4}$ , rather low, flattened; mandible  $1\frac{2}{3}$  in total head.

Single lanceolate gill raker in angle of gill arch, with dozen or more short, rudimentary denticles above and as many below.

Scales very minute, irregular, feeble, deciduous. Lateral line.

Proc. U.S. Nat. Mus., vol. 42, 1912, p. 416 (Tokyo). - JORDAN and THOMPSON, Mem. Carnegie Mus., vol. 6, No. 4, Sept. 1914, p. 258, pl. 42, fig. 1 (Sendai). - TANAKA, Fishes of Japan, vol. 10, Nov. 1916, p. 177, pl. 48, fig. 187, pl. 49, fig. 189-190 (Tokyo).

Nibea mitsukurina JORDAN and HUBBS, Mem. Carnegie Mus., vol. 10, No. 2, June 27, 1925, p. 243 (Toba, Shizuoka, Choski).

Depth  $3\frac{1}{10}$  to  $3\frac{1}{4}$ ; head  $3\frac{1}{4}$  to  $3\frac{1}{3}$ , width 2. Snout  $3\frac{2}{3}$  to  $3\frac{4}{5}$  in head; eye 6 to  $1\frac{1}{2}$  to  $1\frac{2}{3}$  in snout,  $1\frac{3}{5}$  to  $1\frac{3}{4}$  in interorbital; maxillary reaches  $\frac{1}{2}$  in eye, expansion  $1\frac{1}{8}$  to  $1\frac{1}{5}$  in eye, length  $2\frac{1}{3}$  to  $2\frac{1}{2}$  in head; mouth terminally inferior, with 6 pores at chin; narrow bands of villiform teeth in jaws, outer upper row slightly enlarged though hardly canine like, lower with slightly enlarged single row of teeth posteriorly; interorbital  $3\frac{2}{3}$  to  $3\frac{3}{4}$ , broadly convex; 4 or 5 distinct denticles along preopercle edge around angle; preorbital depth from eye to maxillary  $1\frac{1}{2}$  to  $1\frac{3}{4}$  in eye. Gill rakers 8 or 9 + 16 or 17, lanceolate,  $1\frac{1}{3}$  in gill filaments, which equals eye.

Scales 47 to 50 in lateral line to caudal base and 15 to 17 over caudal; 8 above, 11 below, 23 or 24 predorsal to occiput and 16 to 21 more forward to snout end; 12 principal rows of scales across cheek; soft dorsal with single row of basal scales, anal also with low sheath; caudal finely scaled basally. Scales 19 to 21 basal radiating striae; 42 or 43 small apical denticles, with 0 to 2 transverse series of basal elements; circuli moderate.

D. X, I, 27, I or 28, I, third spine  $1\frac{4}{5}$  in head, first ray  $2\frac{2}{3}$  to  $2\frac{3}{4}$ ; A. II, 7, I, second spine  $2\frac{1}{3}$  to  $2\frac{4}{5}$ , first ray  $1\frac{7}{8}$  to  $1\frac{9}{10}$ ; caudal  $1\frac{1}{2}$  to  $1\frac{2}{3}$ , cuneate; least depth of caudal peduncle  $3\frac{1}{8}$ ; pectoral  $1\frac{1}{4}$  to  $1\frac{3}{5}$ ; ventral  $1\frac{3}{5}$  to  $1\frac{2}{3}$ .

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with upper section high along back,  
falls but little below second  
dorsal, tubes 22 + 176; lower  
section with 256 tubes, branches  
over middle of depressed pectoral,  
slopes little forward-down  
behind pectoral axil and close  
over ventral, then undulated to  
middle of caudal base. Fins  
all more or less scaly basally.

D. XVI - I, I, 15, fifth spine  
 $3\frac{2}{5}$  in total head length, first  
branched ray  $3\frac{1}{4}$ ; A. III, I, 14,  
first branched ray  $3\frac{2}{5}$ ; caudal  
 $1\frac{1}{2}$ , widely forked, lobes pointed;  
least depth of caudal peduncle  
 $5\frac{1}{5}$ ; pectoral  $2\frac{1}{8}$ , rays III, 12;  
ventral I, 5, fin 4 in total head  
length.

Light brown, sides and below  
silvery white. Fins pale brown,

no dips

Follow-Incl Caps  
Loaded

688

134789

715

Back brown, under surfaces paler to whitish. Each row of scales above level of pectoral on body with median dark-brown band, equally wide as pale interspaces; arranged from occiput to hind part of soft dorsal obliquely upward, those mostly below lateral line horizontal, likewise posteriorly above lateral line. Iris whitish. Dorsals varied with white and brown, as several dark spots along each ray or spine basally or subbasally with terminal part of fins more uniformly dark. Upper inner pectoral axil dark brown to dusky. Anal little darker in front and basally, fins otherwise all more or less dull brownish.

India, Cochin China, Manchuria, Japan. While not certain of the identification of the Japanese with the Indian species, I feel it best to follow Schlegel until Pseudotolithus mitsukurii Jordan and Snyder can be established as a valid species. The alleged character of distinction by Jordan and Thompson that "the anal spine is much larger" is hardly satisfactory. Concerning Johnius mitsukurii and Johnius albiflora Jordan and Thompson say: "In fact except for the differences in the dark streaks along the rows of scales there is little difference between the two species".

44893 U.S.N.M. Japan. Government of Japan. Length 295 ? to 300 ? mm.

(2) examples. Though Jordan and Thompson stated in 1911 that "the specimens examined by us ... being the only ones known," they could not have known of the above specimens, received in the U.S. National Museum many years previously and identified as Sciaena japonica.

spinous dorsal membranes blackish brown terminally. Inside gill opening and ~~and~~ mouth dull brown.

Cuba, Caribbean Sea. Goode and Bean's figure shows 14 dorsal spines and 14 branched dorsal rays, 13 branched anal rays, also the eye much too small for the orbit.

U. S. N. M., No. 37238. Caribbean Sea. Albatross Collection. 1885.  
Length 540 mm.

154789

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Johnius bleekeri (Steindachner) ← 1129

type locality:

Pseudotolithus bleekeri STEINDACHNER, Verh. zool. bot. Ges. Wien, vol. 16, (1866, p. 773, pl. 14, fig. 4, (Hong Kong).

Depth  $2\frac{4}{5}$ ; head 3. Snout 4 in head; eye  $4\frac{1}{4}$ ,  $1\frac{1}{10}$  in snout; lower jaw slightly shorter; maxillary reaches opposite hind eye edge, length  $2\frac{1}{6}$  in head; upper outer row of teeth enlarged of which 6 anterior slightly canine like, inner lower row of teeth larger than others in mandible; inter-orbital rather low; preopercle edge serrate.

Scales 49 in lateral line to caudal base; 8 above, 12 below (8 above anal base on figure); predorsal scales extend forward to snout end; 8 or 9 rows across cheek to preopercle edge.

D. X, I, 27, third spine  $2\frac{1}{4}$  in head, first ray 3; A. II, 7, second spine  $2\frac{7}{8}$ , first ray  $2\frac{1}{5}$ ; caudal  $1\frac{2}{5}$ , obtusely cuneate; least depth of caudal peduncle  $3\frac{1}{3}$ ; pectoral  $1\frac{1}{3}$ ; ventral  $1\frac{2}{3}$ .

Dark gold brown, with reddish tinge above lateral line. Each scale with on back with slightly paler spot forming longitudinal streaks. Dorsals pale. Caudal, anal, and paired fins blackish brown. Length 163 mm. (Steindachner.)

Hong Kong. Although Steindachner says it is near Johnius semi-luctuosus it seems to me more closely related to Johnius axillaris, especially as described and figured by Day, except that he gives the upper  $\frac{2}{3}$  of the first dorsal black. Not only the dentition, but the dark spot above the pectoral axil so distinctly shown by both Day and Steindachner is an outstanding feature, besides the fin formula and squamation also in agreement.

Genus Healotus Johnson

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Healotus Johnson, Proc. Zool. Soc. London,  
~~1865~~ p. 434, <sup>1865</sup> (Type Healotus tripes  
Johnson, monotypic.)

Body moderately long, well compressed,  
sides flattened. Tail  $1\frac{3}{4}$  in trunk.  
Caudal rather deep, compressed.  
Head large, compressed, pointed.  
Snout conic. Eye large, high,  
center very slightly behind  
middle in head length, <sup>maxillary reaches below eye,</sup> with  
~~very~~ short oblique-groove from  
lower hind edge. Lower jaw  
protrudes, tip bony, with 4 large  
upper fangs anteriorly. Each  
palatine with serrate keel  
formed of points of row of fine  
small teeth. Top of head with  
deep and rather long broad groove.

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Front nostril simple pore at last  $\frac{2}{5}$  in snout and hind one short vertical slit nearly midway between same and front of eye. Gill rakers as few clusters of minute spinules below. Scales delicate, very deciduous, thin, rather large. Lateral line without keel, slopes obliquely and gradually from suprascapular region until well below median axis on caudal peduncle, complete. Dorsal with 21 subequal pungent spines. Soft dorsal and anal opposite, alike, followed by 2 finlets, also preceded by narrow, flat, depressible spine. Caudal with rather large rudimentary rays. Pectoral low, rather long. Ventral reduced to single, small,

Sillago diadoi THIOLLIÈRE, Fauna Woodlark, 1857, p. 151. (Woodlark Island.)

Sillago insularis CASTELNAU, Proc. Zool. Acclimat. Soc. Victoria, vol. 2, (1873, p. 113. (Noumea, New Caledonia). 134789 787

Sillago terrae-reginae CASTELNAU, Proc. Linn. Soc. New South Wales, vol. 2, 1878, p. 232. (Brisbane, Moreton Bay).

Sillago bassensis (not CUVIER) CASTELNAU, Proc. Linn. Soc. New South Wales, vol. 3, 1879, p. 381 (Cape York). - MACLEAY, Proc. Linn. Soc. New South Wales, vol. 5, 1881, p. 567 (compiled). - KENT, Great Barrier Reef, 1893, p. 291 (Queensland). - ROSE, Proc. Roy. Soc. Queensland, vol. 17, 1903, p. 175, pls. 8-14.

Depth  $4\frac{2}{5}$  to  $4\frac{1}{2}$ ; head  $3\frac{1}{5}$  to  $3\frac{1}{3}$ , width  $2\frac{1}{10}$  to  $2\frac{1}{8}$ . Snout 2 to  $2\frac{1}{10}$  in head; eye  $5\frac{1}{2}$  to  $6\frac{1}{2}$ ,  $2\frac{4}{5}$  to  $3\frac{1}{8}$  in snout,  $1\frac{1}{3}$  to  $1\frac{3}{5}$  in interorbital; maxillary reaches  $1\frac{7}{8}$  to  $2\frac{1}{3}$  in snout,  $4\frac{1}{5}$  to  $4\frac{1}{4}$  in head; broad bands of villiform teeth in jaws and on vomer; interorbital  $3\frac{7}{8}$  to  $4\frac{1}{4}$ , broadly convex; preopercle edge with low, sharp, inconspicuous denticles. Gill rakers 3 + 7, short, robust, lanceolate,  $3\frac{1}{4}$  in gill filaments, which  $1\frac{3}{4}$  in eye.

Scales 61 to 63 in lateral line to caudal base and 6 or 7 more on latter, 6 above, 10 or 11 below, 31 to 34 predorsal forward opposite nostrils; 5 rows of scales on cheek below eye; on head and predorsal many as 7 or 8 basal auxiliary scales; fins all more or less with rows of fine scales on membranes. Scales with 6 basal radiating striae; 58 to 65 apical denticles, with 7 to 12 transverse series of basal elements; circuli very fine.

D. XI-I, 17, I or I, 16, I, second spine  $1\frac{2}{5}$  to  $1\frac{2}{3}$  in head, first branched ray  $2\frac{3}{5}$  to  $2\frac{2}{3}$ ; A. III, 15, I, first branched ray  $2\frac{1}{3}$  to 3; caudal  $1\frac{1}{3}$  to  $1\frac{2}{5}$ , emarginate; least depth of caudal peduncle  $2\frac{7}{8}$  to 3; pectoral  $1\frac{3}{4}$  to  $1\frac{9}{10}$ ; ventral  $1\frac{3}{4}$  to  $1\frac{7}{8}$ .

Brown generally, nearly uniform. Each row of scales with narrow median paler brown band extending longitudinally. Iris gray-brown. Each membrane of spinous dorsal with dark or dusky streak parallel to it.

flattened spine.

One species, bathypelagic.  
In depths to 2675 fathoms.

- Club, No. 2, 1904, p. 31. - PELLEGRIN, Bull. Soc. Zool. France, vol. 30, 1905, p. 83 (Baie d'Along, Tonkin). - STEAD, Fishes of Australia, 1906, p. 109, fig. 41 (New South Wales, Queensland, West Australia); Edible Fish. New South Wales, 1908, p. 64, pl. 34. - MC CULLOCH, Zool. Res. Endeavour, vol. 1, pt. 1, Dec. 22, 1911, p. 61 (Sydney, Gulf of Carpentaria, Fremantle). - WEBER, Siboga Exped., vol. 57, 1913, p. 267 (Makassar). - SEALE, Philippine Journ. Sci., vol. 9, No. 1, 1914, p. 69 (Hong Kong). - FOWLER, Proc. Acad. Nat. Sci. Philadelphia, 1925, p. 248 (Delagoa Bay). - MC CULLOCH, Fishes New South Wales, ed. 2, 1927, p. 51, pl. 21, fig. 184b. - TIRANT, Service Océanogr. Pêch. Indo China, Note 6<sup>e</sup>, 1929, p. (10)18 (169) (Hué River). - FOWLER, Proc. Acad. Nat. Sci. Philadelphia, 1929 (1930), p. 611 (Hong Kong).
- Sillago burrus RICHARDSON, Ann. Mag. Nat. Hist., vol. 9, 1842, p. 128. (North West coast of Australia. - CASTELNAU, Proc. Linn. Soc. New South Wales, vol. 2, 1877, p. 232 (note).
- Sillago gracilis ALLEYNE and MACLEAY, Proc. Linn. Soc. New South Wales, vol. 1, 1875, p. 279, pl. 6, fig. 2. (Either at Darnley Island or Hall Sound). ✓
- Sillago aeolus JORDAN and EVERMANN, Proc. U.S. Nat. Mus., vol. 25, 1903, p. 360, fig. 24. (Keerun, Formosa. - JORDAN and RICHARDSON, Mem. Carnegie Mus., vol. 4, No. 4, Aug. 28, 1909, p. 192, fig. 18 (copied).
- Sillago macrolepis (not BLEEKER) EVERMANN and SEALE, Bull. Bur. Fisher., vol. 26, 1906, p. 187 (Bulan).

type locality

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healotus tripes Johnson

healotus tripes Johnson, Proc. Zool.  
Soc. London, ~~1865~~<sup>1865</sup>, p. 434<sup>1865</sup> (type locality,  
Madeira). — Günther, Ref. Voy.  
Challenger, vol. 22, ~~1887~~<sup>1887</sup>, p. 35<sup>1887</sup> (2. lat.  
34° 51' W. Long. 68° 30', in 2675?  
fathoms); vol. 31, ~~1889~~<sup>1889</sup>, p. 6<sup>1889</sup> (reference).  
— Goode and Bean, Oceanic Ichth.,  
~~1895~~<sup>1895</sup>, p. 199<sup>1895</sup> (copied). — Garman,  
Mem. Mus. Comp. Zool., ~~2~~ vol. 24, p.  
384, 1899 (reference). — Brauer, Deutsch.  
Tiefsee Exped. Valdivia, vol. 13, p. 397, 1904 (reference).  
— Smith and Pope, Proc. U. S. Nat. Mus.,  
vol. 31, ~~1906~~<sup>1906</sup>, p. 465<sup>1906</sup> (~~Kagoshima~~  
fig. 1, Hamashima).

— Jordan, Tanaka, Snyder, Journ. College  
Sci. Tokio, vol. 33, (1913) p. 123, fig. 89,  
(Japan).

Depth 7; head  $3\frac{1}{2}$ ; width  $3\frac{1}{4}$ .

Snout  $2\frac{1}{2}$  in head from snout tip; eye 4,  $1\frac{2}{3}$  in snout, slightly greater than interorbital; maxillary reaches  $\frac{1}{4}$  in eye, expansion  $2\frac{1}{5}$ , length 2 in head from snout tip; 4 large, barbed canines in front of upper jaw followed by 10 or 11 small teeth each side, 11 or 12 each side below; long row of fine, pointed, slender, close set teeth on each palatine; none on vomer; interorbital  $5\frac{1}{2}$ , low, nearly level, with deep median-groove extended forward on snout and occiput. Gill rakers as 1 short point in angle and 5 short low clusters of spinules below; gill filaments  $2\frac{1}{4}$  in eye.

Scales (pockets) close along and above lateral line 66 to 7

lucidus, Collichthys, 361, 362, 370.

Gerres, 228, 229, 230.

Sciaenoides, 362.

Xystaema, 229.

lutea, Coryphaena, 112.

Q Synagris, 112.

luteus, Dentex, 112.

Mullus, 305, 314<sup>3</sup>.

Nemipterus, 101, 112.

Parupeneus, 274, 314, 318.

Pseudupeneus, 273, 312, 313.

Synagris, 87, 112.

Upeneus, 303, 304, 305, 313, 318.

Lutianus rubricundus, 98.

Lutjanus diacanthus, 374.

Q fulviflamma, 27.

luzonius, Upeneoides, 325.

Q Upeneus, 320, 324.

lycogenis, Dentex, 76.

< slug >

maccullochi, Pseudomycterus, 370, 383.

macracantha, Xystaema, 250.

macracanthus, Crenidens, 201.

a Diapterus, 250.

Gerres, 249, 252.

macrocephalus, Dentex, 121.

Labrus, 121.

a Pagrus, 163, 385.

Sparus, 147, 163.

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caudal base; tubes 90 in lateral line to caudal base; 11 scales above lateral line, 8 below. Scales very deciduous, most all fallen.

D. XXI - I, 16 + 2, third spine  $3\frac{2}{3}$  in total head length, first branched ray (damaged) 4?; A. I - I, 15 + 2, second branched ray  $3\frac{1}{2}$ ?; caudal small, forked; least depth of caudal peduncle  $6\frac{1}{8}$ ; pectoral 2, rays II, 11; ventral rays I, fin 8 in total head length.

Uniform dull grayish brown. Inside gill opening and mouth dark gray. Fins and iris all dull brown.

Madeira; North Atlantic, Japan.

limbatum, Catochaenum, 230.

limbatus, Gerres, 228, 230.

lineatus, Boops, 180.

Box, 180.

Mullus surmuletus var., 259.

Upeneichthys, 259.

lineolatus, Gerres, 235, 238, 239.

lineopunctatus, Dentex, 118, 121.

Lithognathus, 171, 173.

capensis, 173.

lithognathus, Pagrus, 146, 171, 172, 173.

Lobotes microprion, 130.

lobata, Corvina, 383.

longicaudus, Gerres, 238, 239.

longifilis, Argyrops, 144.

Pagrus, 144.

Sparus, 144.

longimana, Equula, 256.

longimanus, Equula, 256.

Pentapion, 256.

longirostris, Gerres, 227, 246.

Labeus, 237, 246.

Lethrinus, 8.

longispinis, Sparus, 163.

longispinis, Chrysophrys, 155, 163.

lophus, Sparus, 165, 166.

Lota kummunikar, 330.

lucida, Collichthys, 362.

Hemisciaena, 362.

Sciaena, 361, 362.

lucidum, Xystaema, 229.

U.S. N. M., No. 59639. Kagoshima,  
Japan. Dr. H. M. Smith. Length  
235 mm (caudal ends damaged).

Scales ctenoid, ~~often~~ feebly so, 75 to 80 in lateral line; 14 to 17 above, 25 to 29 below. Tubes in lateral line arborescent on front part of body with age, trifurcate on hind part.

*fol*  
*pure*  
D. X, 27 to 31, first spine short, third or third and fourth longest;  
A. II, 9, spines weak.

Silvery, bluish above, belly white. Edges of both jaws and opercle bright yellow. Fins grayish, anals and ventrals white. Black axillary spot. Reaches 1000 mm. (Barnard.)

A valued food fish. I follow Barnard in his contention that South African and Australian forms are the same species.

Genus Pseudosciaena Bleeker *← 1306*

*h* Pseudosciaena BLEEKER, Nederland. Tijdschr. Dierk., vol. 1, (1863, p. 142.

*cp* (Type Pseudosciaena amblyceps BLEEKER, designated by Jordan, Genera of Fishes, pt. 3, 1919, p. 241.)

*h* Othonias JORDAN and THOMSON, orthotypic.

Head obtuse, convex, with muciferous cavities. Mouth large, oblique. Opercle with simple point. Gill rakers 18 on lower branch of first arch. Soft dorsal, anal and caudal densely covered with small scales. Silvery dermal glandular organ on ventral surface, one below each scale. Dorsal spines 10, rays 27 to 33. Anal spines 2, rays 7 to 9.

I do not accept the two designations of the alleged genotype by Bleeker as neither are contained in the original account of the genus. *47 12*

*6-Pt footnote*  
*h* Bleeker, Verh. Kon. Akad. Wet. Amsterdam (Rev. Sciaen.), vol. 14, 1874, p. 18. (Type Otolithus macrophthalmus BLEEKER, orthotypic.) *A*

Bleeker, Arch. Néerland. Sci. Nat. Harlem, vol. 11, (1876, p. 329. (Type Sciaena aquila RISSO, orthotypic.)

Genus Machaerope Ogilby

Machaerope Ogilby, Proc. Linn. Soc.  
New South Wales, vol. 23, <sup>pt. 4</sup> p. 737,  
Nov. 30, 1899. (Type Machaerope  
latispinis Ogilby, monotypic.)

Body elongate, greatly compressed,  
ventral profile subcylindrical.  
Head large. Snout acute, moderate.  
Eye large, lateral, round.  
Mouth cleft wide, oblique, lower  
jaw projecting. Premaxillaries  
not protractile. Maxillary  
extends below eye, exposed.  
Jaws with series of acute,  
compressed, distant teeth; front  
ones on premaxillaries greatly  
enlarged, fang like; series of  
small, recurved teeth on palatines;  
vomer, pterygoids and tongue smooth.

Nostrils separate, in groove.  
 Opercle deeply notched, lower  
 limb forms broad spine like  
 point. Gill openings wide,  
 gill membranes separate, free  
 from isthmus. Gills 4, slit  
 behind fourth. Gill rakers small,  
 distant, acute, unequal, single  
 enlarged one in angle.

Pseudobranchiae present  
 Branchiostegals 7. <sup>Scales moderate, delicate, concentrically striated, few and scattered.</sup> Two separate  
 dorsals, first with 20 spines,  
 begins over middle of opercle.  
 Anal opposite and like second  
 dorsal. Both second dorsal and  
 anal followed by 2 finlets.  
 Caudal forked. Caudal peduncle  
 without keel. Pectoral pointed.  
 Ventral single strong spine, inserted  
 below pectoral base.

One species.

Machoepe latispinis Ogilby

Machoepe latispinis Ogilby, (Proc.  
Linn. Soc. New South Wales, vol. <sup>1st. 4,</sup> 23,  
(1899) p. 737, (type locality, Lord  
Howe Island).

Depth  $8\frac{2}{3}$  in total; head 4.  
Eye 4 in head,  $1\frac{1}{2}$  in snout;  
premaxillaries with 3 pairs of  
curved canines anteriorly, mandible  
with 1 pair much smaller and  
lanceolate; 11 lateral teeth on each  
ramus of upper jaw, 8 to 11 on lower;  
maxillary reaches  $\frac{1}{3}$  in eye,  
expansion  $\frac{3}{8}$  of eye, length  $2\frac{1}{3}$   
in head; front nostril smaller,  
hind one oval, subvertical,  
 $\frac{3}{5}$  eye diameter before eye;  
interorbital concave,  $5\frac{1}{2}$  in head;

India, pt. 1, 1875, p. 98, pl. 25, fig. 3.  $\frac{1}{m}$   
Peters, Monatsber. Akad. Wiss. Berlin,  
 1876, p. 437 (Mauritius); 1876 (1877), p. 832  
 (New Britain; New Hannover).  $\frac{1}{m}$  Klunzinger,  
 Sitz. Ber. Akad. Wiss. Wien, math.-naturw.  
 Klasse, vol. 80, pt. 1, 1879, p. 354 (Queensland),  
 $\frac{1}{m}$  Karoli, Termesz. Füzetek, Budapest,  
 vol. 5, 1881, p. 155 (Singapore).  $\frac{1}{m}$  Macleay,  
 Proc. Linn. Soc. New South Wales, vol. 5, 1881,  
 p. 379 (Endeavour River <sup>Torres Straits</sup>); vol. 8, 1883, p.  
 (Lower Burdekin River).  $\frac{1}{m}$  Klunzinger,  
 Fische Roth. Meer., 1884, p. 48.  $\frac{1}{m}$  Day, Fauna  
 British India <sup>Fishes</sup>, vol. 2, 1889, p. 537, fig. 163.  $\frac{1}{m}$   
Kent, Great Barrier Reef, 1893, p. 283 (Moreton  
 Bay).  $\frac{1}{m}$  Weber, Zool. Ergebnisse Reise Niederl.  
 Ost Indien, vol. 3, 1894, p. 408 (river mouths  
 at Tanette, Celebes).  $\frac{1}{m}$  Fowler, Journ. Acad.  
 Nat. Sci. Philadelphia, series 2, vol. 12, 1904,  
 p. 530 (Padang).  $\frac{1}{m}$  Pellegrin, Bull. Soc.  
 Zool. France, vol. 30, 1905, p. 84 (Baie de

opercle with feeble; radiating striae and numerous minute shallow pits.

D. XX, I,  $17 + 2$ , fifth to tenth spines subequally longest,  $3\frac{1}{4}$  in head, scarcely long as front rays; A. I,  $14 + 2$ , hind finlet, like that of dorsal, longer; caudal 6 in total; pectoral rays 13, begin below second and end below seventh dorsal spine, length 2 in head; ventral spine little longer than postanal,  $\frac{3}{5}$  of eye.

Metallic blue, darkest above. Fins lighter. Length 155 mm. (Agilby.)

Lord Howe Island.

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Genus Promethichthys Gill

Promethichthys Gill, Mem. Nat.  
Acad. Sci., vol. 6, ~~1893~~ pp. 115, 123, 1893.  
(Type Prometheus atlanticus Lowe,  
virtually, Promethichthys Gill  
proposed to replace Prometheus Lowe.)

Prometheus (not Hübner) (Quoy and  
Gaimard) Lowe, Trans. Zool. Soc.  
London, vol. 11, ~~1841~~ p. 181, <sup>1841</sup> Type  
Prometheus atlanticus Lowe, monotypic.)

Body compressed, elongate, tapers backward, tail  $1\frac{4}{5}$  in trunk. Caudal peduncle compressed, moderate. Head large, compressed, pointed in front. Snout conic. Eye with center slightly postmedian in head, high. Mouth moderately long, lower jaw protruding. Maxillary reaches below eye, with slight groove down from hind edge. Teeth uniserial in jaws and on each palatine, 2 to 4 large fangs above in front and 1 or 2 below in front. Nostrils pores, front one little behind middle in snout length and hind one vertically ellipsoid, larger and little nearer front one than eye. Interorbital, snout and cranium in front with deep concave groove. Preopercle edge well free above. Gill rakers as

hexodon, Dentex, 87.

*C* Synagris, 85, 87.

Hogbinia, 271, 272.

Holocentrus rabaji, 161.

*C* soldado, 392.

hololepidota, Sciaena, 400.

hololepidotus, Johnius, 373, 400.

*C* Larrus, 370, 400.

Sciaena, 400.

holubi, Pagrus, 169.

Pagrus (Chrysophrys), 169.

*C* Sargus, 150.

Sparus, 169.

<sup>3</sup>  
Homodon, 434.

Hoplegnathus, 217.

*C* algoensis, 218.

conwayi, 218.

conwayii, 218.

fasciatus, 219, 222.

maculosus, 224.

pappei, 218.

punctatus, 224.

robinsoni, 223.

woodwardi, 218.

Hoplognathus, 217.

*C* australis, 218.

fasciatus, 219.

krusensternii, 219.

punctatus, 224.

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clusters of minute spinules. Scales minute, very deciduous, thin and fragile. Lateral line high along back till above middle of pectoral then falls a little below median body axis to caudal. Dorsal spines 20 or 21, subequal, pungent. Soft dorsal and anal opposite, alike, include last 2 or 3 finlet like rays. Caudal forked, small.

Pectoral low, moderate. Ventral reduced to very small or rudimentary spine, inserted little before pectoral.

Fishes of moderate size and bathypelagic.

hardwickii, Sciaenoides, 360.

hasta, Aurata, 21.

Chrysophrys, 155, 157, 163, 164.

Dentex, 161.

Sparus, 155, 157, 160, 161, 163.

heinii, Sciaena, 401.

hellmuthi, Pentapus, 73.

hellmuthii, Heterognathodon, 73.

Pentapodus, 70, 73.

Pentapus, 73.

Hemisciaena, 361.

lucida, 362.

Heterodon zonatus, 80.

heterodon, Pagrus, 135.

Sphaerodon, 135.

Sphoerodon, 136.

Heterognathodon, 69.

bifasciatum, 80.

bifasciatus, 69, 80.

caninus, 80.

flaviventris, 94.

gulliminda, 102.

hellmuthii, 73.

macrurus, 72.

microdon, 81.

nemurus, 74, 90.

petersii, 95.

xanthopleura, 80.

xanthopleuros, 81.

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Promethichthys prometheus (Cuvier)

Gempylus prometheus Cuvier, Hist.  
nat. Poiss., vol. 8, ~~1831~~ p. 213, pl. 222,<sup>1831</sup>  
(type locality, St. Helena, South  
Atlantic). — Valenciennes, Hist.  
nat. Canaries, vol. 2, pt. 2, ~~1836-44~~  
p. 51, pl. 11,<sup>1836-44</sup> (St. Helena; Bahia;  
Canaries). — Steindachner, Sitzs.  
Akad. Wiss. Wien, vol. 51, pt. 1, ~~1865~~  
p. 401,<sup>1865</sup> (Santa Cruz, Teneriffe). —  
Jordan and Gunn, Proc. Acad.  
Nat. Sci. Philadelphia, ~~1898~~ p.  
341,<sup>1898</sup> (Canaries).

Thyrssites prometheus Günther,  
 Cat. Fish. Brit. Mus., vol. 2, ~~1860~~  
 p. 35<sup>1860</sup>, (Madeira); Proc. Zool.  
 Soc. London, ~~1868~~ p. 225<sup>1868</sup>, (St.  
 Helena). — Steindachner, Sitzs. Ber.  
 Akad. Wiss. Wien, vol. 57, pt. 1, ~~1868~~  
 p. 990<sup>1868</sup>, (Teneriffe). — Melliss, St.  
 Helena, ~~1875~~ p. 107<sup>1875</sup>. — Günther,  
 Journ. Mus. Godeffroy, vol. 4, ~~1875~~  
 p. 107, pl. 68, fig. A<sup>1875</sup>, (Cook Islands;  
 Tahiti); Rep. Voy. Challenger, vol.  
 22, ~~1887~~ p. 268<sup>1887</sup>, (Madeira); vol. 31,  
~~1889~~ p. 7, pl. 1, figs. c-d<sup>1889</sup>, (Hawaiian  
 Islands). — Steindachner, Sitzs.  
 Ber. Akad. Wiss. Wien, math. naturw.  
 Kl., vol. 100, pt. 1, ~~1891~~ p. 356<sup>1891</sup>, (east  
 of Telde, in 200 m.), p. 358 (south  
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 150 to 300 m.). — Vinciguerra,  
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~~1892~~ p. 315<sup>1892</sup>, (Grand Canary). —  
Garman, Mem. Mus. Comp. Zool., vol. 24, p.  
 384, 1899 (reference).

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— Cunningham, Proc. Zool. Soc. London,<sup>414</sup>  
~~xxxx~~ p. 173,<sup>1910</sup> (St. Helena). —  
Clark, Proc. Roy. Phys. Soc.<sup>1913</sup>  
Edinburgh, vol. 19, ~~xxxx~~ p. 393,<sup>1</sup> (St.  
Helena). — Lampe, Deutsche  
Südpolar Exped., vol. 15, ~~xxxx~~ p.  
295,<sup>1914</sup><sub>1</sub> (Ascension Island).

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croceopterus, 7, 51.

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 — Jordan and Evermann, Bull. U. S. Nat. Mus., no. 47, pt. 1, ~~1895~~ p. 882, 1896 (compiled). — Warte, Rec. Austral. Mus., vol. 5, ~~1895~~ p. 3, <sup>1903</sup> (Paianopa, Ocean Island, Gilbert Group).  
 — Jordan and Evermann, Bull. U. S. Fish Comm., vol. 23, pt. 1, ~~1895~~ <sup>1903 (1905)</sup> p. 178, pl. 29, <sup>1</sup> (Honolulu).  
 — Fowler, Mem. Bishop Mus., vol. 10, ~~1895~~ p. 135, pl. 9 <sup>1928</sup> (type of Promethichthys pacificus; Honolulu; Hawaiian Islands).

— Jordan, Tanaka, Snyder, Journ. College Sci. Tokio, vol. 33, ~~1895~~ p. 123, <sup>1913</sup> (Japan).

laterstriga, Mullus, 279.

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Lethrinidae, 4.

Lethrininae, 4.

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Prometheus atlanticus Lowe, Proc.  
Zool. Soc. London, (1839) p. 78 (type  
locality, Madeira); Trans. Zool.  
Soc. London, vol. 11, (1841) p. 181,  
(Madeira); <sup>18</sup>Fishes of Madeira,  
~~MS~~ p. 141, pl. 20, <sup>18</sup>— Poey, Synop.  
Pesc. Cuba, ~~MS~~ , p. 364, 18

Thyrsites balleini Sauvage, Bull.  
Soc. Philom. Paris, ser. 7, vol. 6, ~~1882~~,  
p. 170, <sup>1882</sup> (type locality, Hawaiian  
Islands).

Promethichthys pacificus Seale,  
Occas. Pap. Bishop Mus., vol. 4, no. 1,  
~~1906~~ p. 28, fig. 9, <sup>1906</sup> (type locality, Tahiti).

Promethichthys solandri (not  
Valenciennes) Jordan, Evermann, Tanaka,  
Proc. Cal. Acad. Sci., ser. 4, vol. 16, no.  
14, ~~1927~~, p. 653, <sup>1927</sup> (Honolulu).

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Depth  $6\frac{3}{5}$  to 7; head  $3\frac{1}{3}$  to  $3\frac{2}{3}$ ,  
width  $3\frac{1}{4}$  to  $3\frac{1}{2}$ . Snout  $2\frac{1}{2}$  to  $2\frac{2}{3}$   
in head from snout tip; eye  
 $4\frac{2}{3}$  to 5,  $1\frac{7}{8}$  to 2 in snout, greatly  
exceeds interorbital; maxillary  
reaches  $\frac{1}{4}$  to  $\frac{1}{3}$  in eye, expansion  
 $2\frac{1}{2}$  to  $2\frac{4}{5}$  in eye, length 2 to  $2\frac{1}{8}$  in  
head from snout tip; 3 large upper  
front canines with several low  
small ones scattered about,  
followed by row of about 20 or  
more rather close set compressed  
teeth each side; 2 low close set  
recurved teeth anteriorly in  
mandible, followed by about 11  
to 14 each side; short row of  
small close set teeth on each  
palatine; tongue smooth;  
interorbital  $5\frac{7}{8}$  to  $6\frac{1}{8}$ , level, low,  
with broad, slight median

Johnius goldmanni (Bleeker) 134789 707

Corvina goldmanni BLEEKER, Nat. Tijds. Nederland. Indië, vol. 7, 1854, p. 371, (Soengi Puan, Batjan).

Johnius goldmani BLEEKER, Act. Soc. Sci. Ind. Néerland., No. 2, vol. 6, 1859, p. 4 (Doreh, New Guinea).

Johnius goldmanni FOWLER, Proc. Acad. Nat. Sci. Philadelphia, 1927, p. 286 (Philippines); Mem. Bishop Mus., vol. 10, 1928, p. 235 (on GÜNTHER).

Sciaena goldmanni GÜNTHER, Cat. Fish. Brit. Mus., vol. 2, 1860, p. 293 (compiled).

Otolithus goldmani BLEEKER, Nederland. Tijdschr. Dierk., vol. 2, 1865, p. 281 (Amboina).

Pseudosciaena goldmani BLEEKER, Verh. Kon. Akad. Wet. Amsterdam, vol. 14, ser. 3, 1874, p. 33 (Bali, Batjan, Amboina, New Guinea).

Argyrosomus goldmani FOWLER, Proc. Acad. Nat. Sci. Philadelphia, 1918, p. 43 (Philippines); Copeia, No. 58, June 18, 1918, p. 64 (same materials).

Depth  $3\frac{1}{5}$  to  $3\frac{1}{4}$ ; head  $2\frac{1}{5}$  to 3, width 2. Snout  $3\frac{2}{5}$  to  $3\frac{3}{5}$  in head; eye  $4\frac{7}{8}$  to  $5\frac{1}{4}$ ,  $1\frac{3}{5}$  in snout,  $1\frac{2}{5}$  in interorbital; maxillary reaches opposite hind pupil edge, length  $2\frac{1}{5}$  to  $2\frac{1}{4}$  in head; narrow band of fine jaw teeth, outer upper row enlarged and lower inner row slightly enlarged and close set; interorbital  $3\frac{2}{3}$  to  $3\frac{4}{5}$ , broadly convex. Gill rakers 8 + 12, lanceolate.

Scales 47 or 48 in lateral line to caudal base; 7 above, 7 or 8 below, 32 predorsal. Scales with 9 to 11 basal radiating striae; 56 to 63 apical denticles, with 10 to 12 transverse rows of basal elements; circuli very fine.

depression, Gill rakers  $10 + 30$ .  
 short, irregular, variable denticles,  
 $\frac{1}{5}$  of gill filaments, which  $\frac{1}{3}$  of  
 eye.

Scales fine, irregular, close  
 set, 165 in lateral line to caudal  
 base and 8 more on latter. Lateral  
 line arched over pectoral, arch  
 $5\frac{3}{4}$  in rest of course which  
 deflected to lowest  $\frac{2}{5}$  in body  
 depth over anal origin.

D. XVIII—I, I to III, 15 to 18 + 2,  
 fourth spine  $3\frac{1}{2}$  to 4 in total  
 head length, first branched ray  
 $3$  to  $3\frac{7}{8}$ ; A. I, I or II, 13 or 14 + 2,  
 first branched ray  $4\frac{1}{8}$  to  $4\frac{1}{4}$ ;  
 caudal  $1\frac{7}{8}$  to 2, deeply forked;  
 least depth of caudal peduncle  
 $6\frac{1}{3}$  to 7, pectoral  $1\frac{7}{8}$  to  $2\frac{1}{4}$ , rays

Brown above, below whitish. Spinous dorsal, anal and ventral more or less blackish terminally, other vertical fins dusky terminally. Pectoral pale brown. Iris slate.

Natal, India, Andamans, Malayan Peninsula, East Indies, Philippines.  
52983, 52984, A.N.S.P. / Bombay, India. Prof. F. Hallberg. 1924. Purchased.

Length 102 to 114 mm.

Johnius novae-hollandiae (Steindachner) 22.129

Sciaena (Corvina) novae-hollandiae STEINDACHNER, Sitz. Ber. Akad. Wiss.

Wien, Math.-nat. Kl., vol. 53, pt. 1, (1866, p. 445, pl. 5, fig. 2)

(Port Jackson).

Sciaena novae-hollandiae OGILBY, Mem. Queensland Mus., vol. 6, Dec. 19,

(1918, p. 79, pl. 23) (types of Corvina comes and Pseudomycteris maccullochi).

Johnius novae-hollandiae BLEEKER, Verh. Kon. Akad. Wet. Amsterdam, ser.

3, vol. 14, (1874, p. 41 (Sumatra; Borneo); Atlas Ichth. Ind. Néerland.,

vol. 9, (1877, pl. (2) 387, fig. 1, - VINCIGUERRA, Ann. Mus. Civ. Stor.

Nat. Genova, ser. 3, vol. 10, (1926, p. 576 (Sarawak).

Corvina comes DE VIS, Proc. Linn. Soc. New South Wales, vol. 9, 1884, p.

538. (Brisbane River, South Queensland).

Pseudomycteris maccullochi OGILBY, Proc. Roy. Soc. Queensland, vol. 21,

(1908, p. 96, (Logan River, South Queensland).

I, 12 to I, 13.

Dark brown to chocolate black, scarcely paler below with pale shades. Iris brown. Inside mouth and gill opening blackish brown. Fins all brownish.

Japan, Polynesia, Hawaii. Also in the Atlantic at Bermuda, Cuba, Brazil, Canaries, Ascension and St. Helena Islands.

Follow-Incl Caps

134789

708

(100) D. XI, 27, I, third spine  $1\frac{7}{8}$  to 2 in head, first ray 3 to  $3\frac{1}{8}$ ;  
 A. II, 8, I, second spine 3 to  $3\frac{3}{4}$ , third ray  $2\frac{1}{10}$  to  $2\frac{1}{3}$ ; caudal  $1\frac{1}{3}$  to  $1\frac{1}{2}$ , obtuse behind; least depth of caudal peduncle  $3\frac{1}{4}$  to  $3\frac{1}{2}$ ; pectoral  $1\frac{1}{4}$  to  $1\frac{1}{2}$ ; ventral  $1\frac{2}{5}$  to  $1\frac{3}{5}$ .

Back dull brown, below whitish. Iris gray. Fins brown, spinous dorsal gray.

East Indies, Philippines.

47648, 47649, A.N.S.P. Philippines. Commercial Museum of Philadelphia.

Length, 168 to 188 mm.

Johnius polykladiskos (Bleeker) 22.129

Corvina polykladiskos BLEEKER, Nat. Tijds. Nederland. Indië, vol. 3, 1852, p. 420. (Banjermasin, Borneo).

Corvina polycladiscus GÜNTHER, Cat. Fish. Brit. Mus., vol. 2, 1860, p. 301 (compiled).

Pseudosciaena polycladiscus BLEEKER, Verh. Kon. Akad. Wet. Amsterdam, ser. 3, vol. 14, 1874, p. 29 (Borneo); Atlas Ichth. Ind. Néerland., vol. 9, 1877, pl. (1) 384, fig. 1.

Depth 3; head  $3\frac{1}{5}$ , width  $2\frac{1}{8}$ . Snout  $2\frac{1}{3}$  in head; eye 9,  $2\frac{1}{5}$  in snout,  $2\frac{1}{8}$  in interorbital; maxillary reaches  $\frac{1}{2}$  in eye, expansion slightly greater than eye, length  $2\frac{7}{8}$  in head; jaws even in front, chin with 4 slit-like pores; teeth in villiform bands in jaws, upper outer row slightly enlarged likewise inner lower row, though less so; interorbital 4, broadly convex; preopercle finely and strongly serrate. Gill rakers 6 + 13, lanceolate, strong,  $1\frac{1}{4}$  in gill filaments, which  $1\frac{1}{4}$  in eye.

U. S. N. M., No. 8133. No locality.  
Length 205 mm.

U. S. N. M., No. 21308. Bermuda.  
G. Browne Goode. Length 577 mm.

U. S. N. M., No. 23331. Funchal,  
Madeira. May 1879. F. B. McGuire.  
Length 585 mm.

U. S. N. M., No. 51152. Hawaiian  
Islands. Bureau of Fisheries  
(04215). 1901. Length 428 mm.

U. S. N. M., No. 52767. Hawaiian  
Islands. Bureau of Fisheries  
(04214). 1901-2. Length 393 mm.

U. S. N. M., No. 56341. Izu,  
Japan. Bureau of Fisheries.  
Length 273 to 274 mm. 2 examples.

U. S. N. M., No. 71060. Tokio market.  
Albatross Collection. Length 394 mm.

U. S. N. M., No. 71061. Tokio market.  
Albatross Collection. 1906. Length  
372 mm.

Loaded

134789

709

Scales 50 in lateral line to caudal base and 25 ? more on caudal; 10 above, 9 below; 21 predorsal to occiput and 30 more forward nearly to snout end; 22 scales on cheek to preopercle ridge angle and 8 more across flange to preopercle angle; soft dorsal and anal with narrow basal scaly sheaths; caudal finely covered with small scales. Scales with 8 basal radiating striae; 118 apical denticles, with about 22 transverse series of basal elements; circuli very fine.

D. X, I, 30, I, third spine  $2\frac{3}{5}$  in head, first ray  $2\frac{1}{5}$ ; A. II, 6, I, enlarged second spine  $1\frac{2}{3}$  or equals postocular, first ray  $1\frac{2}{3}$  in head; caudal  $1\frac{3}{4}$ , cuneate; least depth of caudal peduncle  $4\frac{1}{3}$ ; pectoral  $1\frac{2}{5}$ ; ventral  $1\frac{1}{2}$ .

Brown, paler to whitish below. Membranes of dorsals deeper brownish terminally. Iris whitish.

Borneo. Greatly like Johnius soldado, but differing in the larger and more slender caudal peduncle and greatly smaller eye.

35720 U.S.N.M. Sandong River, North Borneo. W.T. Hornaday. Length 505 mm.

✓ This example skinned out.

Johnius sina (Cuvier) ← 129

Corvina sina CUVIER, Hist. Nat. Poiss., vol. 5, 1830, p. 122, (Pondicherry, Malabar, Japan). - VALENCIENNES, Voy. Ind. Orient. Bélanger, Zool., 1834 p. 359 (Malabar; Pondicherry). - RICHARDSON, Ichth. China Japan, 1846, p. 225 (China). - BLEEKER, Verh. Batav. Genootsch. (Japan), vol. 25, 1853, p. 12, (Bengal); vol. 25, 1853, p. 36, (Japan); vol. 26, 1857, p. 82, (Nagasaki); Act. Soc. Sci. Ind. Néerland., No. 3, vol. 3, 1857-1858, p. 5, (Japan); Versl. Meded. Akad. Wet. Amsterdam, ser. 2, vol. 3, 1869, p. 238 (Jedo).

47  
U. S. N. M., No. 71165. Misaki,  
Japan. Albatross Collection. 1906.  
Length 408 mm.

8 pt. Needed

Follow - Incl Caps

134783

710

Sciaena sina GÜNTHER, Cat. Fish. Brit. Mus., vol. 2, (1860, p. 292 (compiled). - DAY, Fishes of Malabar, (1865, p. 52; Fishes of India, pt. 2, 1876, p. 186, pl. 4, fig. 2 (Bombay; Sind). - MARTENS, Preuss. Exped. Ost. Asien, 1876, p. 20 (Yeddo; Yokohama; Manila). - GÜNTHER, Rep. Voy. Challenger, vol. 1, 1880, p. 66 (Inland Sea of Japan). - KAROLI, Termész. Füzetek, Budapest, vol. 5, 1881, p. 159 (Cantor). - DAY, Fauna Brit. India, vol. 2, (1889, p. 113. - BOULENGER, Proc. Zool. Soc. London, 1892, p. 135 (Muscat). - ELERA, Cat. Fauna Filip., vol. 1, 1895, p. 501 (Manila; Luzon). - ISHIZAWA and MATSUURA, Prelim. Cat. Fishes Mus. Tokyo, 1897, p. 45. - ZUGMAYER, Abh. Bayer. Akad. Wiss., Math.-phys. Kl., vol. 26, pt. 6, (1913, p. 12 (Mekran; Oman).

Johnius sina BLYTH, Journ. Asiat. Soc. Bengal, vol. 29, 1860, p. 141 (Sitang River). - BLEEKER, Verh. Kon. Akad. Wet. Amsterdam, vol. 14, 1874, p. 54 (copied). - FOWLER, Proc. Acad. Nat. Sci. Philadelphia, 1925, p. 247 (Delagoa Bay); Journ. Bombay Nat. Hist. Soc., vol. 33, No. 1, 1928, p. 115 (Bombay).

Otolithus vogleri BLEEKER, Nat. Tijds. Nederland. Indië, vol. 4, 1853, p. 253. (Benculen, Sumatra). *type locality*

Sciaena vogleri GÜNTHER, Cat. Fish. Brit. Mus., vol. 2, (1860, p. 294 (compiled). - DAY, Fishes of India, pt. 2, (1876, p. 186, pl. 45, fig. 1; Fauna Brit. India, vol. 2, (1889, p. 113. - ZUGMAYER, Abh. Bayer. Akad. Wiss., Math.-phys. Kl., vol. 26, pt. 6, 1913, p. 12 (Mekran). - VINCIGUERRA, Ann. Mus. Civ. Stor. Nat. Genova, ser. 3, vol. 10, 1926, p. 577 (Sarawak). - BARNARD, Ann. South Afric. Mus., vol. 21, pt. 2, 1927, p. 571 (Pondoland, Natal coast, Delagoa Bay to 50 fathoms). ✓

Pseudosciaena vogleri BLEEKER, Verh. Kon. Akad. Wet. Amsterdam, vol. 14, ser. 3, (1874, p. 35 (Samarang, Celebes); Atlas Ichth. Ind. Néerland., vol. 9, 1877, pl. (3) 386, fig. 4.

Genus Rexea Waite

Rexea Waite, Proc. New Zealand  
Inst., pt. 2, p. 49, 1910 (Jan. 18, 1911).  
(Type Rexea furcifera Waite =  
Gempylus solandri Cuvier,  
monotypic.)

Jordanidia Snyder, Proc. U. S.  
Nat. Mus., vol. 40, p. 527, 1911.  
(Type Jordanidia <sup>raptoria</sup> ~~raptatoria~~  
Snyder = Gempylus solandri  
Cuvier, orthotypic.)

Body elongate, strongly compressed. Head rather large, pointed. Snout rather long. Eye large, rounded, nearly median in head length. Maxillary reaches below eye. Lower jaw protrudes. Teeth uniserial in jaws and on palatines, several enlarged anteriorly in former. Interorbital low. Gill rakers as small clusters of spinules. Pseudobranchiae large. Scales small, thin, very deciduous. Lateral line with upper section high along back to below base of soft dorsal, lower branch arched down along middle of body to caudal base. Dorsal and anal each followed by 3 finlets. Anal below soft dorsal, similar.

Analysis of ~~the~~ species bottom only

a. Girella. Outer jaw teeth uniserial, tricuspid; scales 50 to 58 in lateral line.

b. Nostrils scarcely fimbriate; dorsal spines 14 to 16; caudal more or less emarginate.

c. Bright blue.

c.<sup>2</sup> Dark amber, base of each scale on head with dark spot; dark bar on pectoral base. cyanea.

b.<sup>2</sup> Nostrils distinctly fimbriate; dorsal spines 13; caudal subtruncate. punctata.

a.<sup>2</sup> Outer jaw teeth imbricate, in 2 to 4 rows, simple or tricuspid; dorsal spines 14 to 16. elevata.

d. Melanichthys. Scales 49 to 52 in lateral line. <sup>13</sup> over name only

e. Body uniformly colored, or with 11 dark vertical bands.

424  
Caudal deeply forked. Pectoral  
small. Ventrals absent.

One species.

Top of head and opercles chiefly naked. Scales extend on dorsal bases, forming imperfect sheath. Dorsal rather low, spines 13 to 15, rays 14, depressible in incomplete groove. Anal spines 3, small, graduated, rays 12. Caudal lunate. Species few, feeding and living among seaweeds or sea weed covered rocks. Not greatly valued as food. The largest species attain 600 mm.

425

Rexea solandri (Cuvier)  
Valenciennes

Gempylus solandri Cuvier  
Valenciennes, Hist.  
Nat. Poiss., vol. 8, <sup>p. 215</sup> 1831 (January 1832),  
~~p. 215~~ (type locality, New Holland).

Thyrsites solandri Günther, Cat. Fish.  
Brit. Mus., vol. 2, (1860) p. 352 (copied). —  
Garman, Mem. Mus. Comp. Zool., vol. 24, p. 384, 1899 (reference).  
Promethichthys solandri Jordan and  
Snyder, Annot. Zool. Japon., vol. 3, ~~1901~~,  
p. 65, <sup>1901</sup> (Yokohama).

Rexea solandri McCulloch, Mem.  
Austral. Mus., no. 5, pt. 2, September  
10, 1929, ~~p. 269~~ (reference) <sup>p. 269</sup>,

Scomber macrophthalmus (Volander)  
Valenciennes, <sup>Kuiper</sup> Hist. Nat. Poiss., vol.  
8, <sup>p. 215</sup> 1831 (January 1832) ~~1831~~ (name  
in synonymy).

Thyrsites prometheoides Bleeker,  
Act. Soc. Sci. Ind. Neerl., vol. 1, no.  
5, (1856) p. 42 (type locality,  
Amboina); Nat. Tijds. Ned. Indie,  
vol. 13, (1857) p. 372 (Sangi). —  
Günther, Cat. Fish. Brit. Mus.,  
vol. 2, (1860) p. 352 (copied). —  
Garman, Mem. Mus. Comp. Zool., vol. 24, p.  
384, 1899. (reference).

Thyrsites micropus McCoy, Ann.  
Mag. Nat. Hist., ser. 4, vol. 11, <sup>p. 338,</sup> May 1,  
1873, ~~1873~~ (type locality, Tasmania).

Dirotus prometheoides Weber, Siboga  
Exped., vol. 57, 1913, Fische, p. 404,  
1913 (lat. 5° 3.5' S., long. 119° 0' E.,  
Macassar Strait, in 450 meters).

valenciennii, 375.

voglieri, 389, 390.

jubata, Corvina, 399.

jubatus, Johnius, 373, 399.

kallopterus, Lethrinus, 6, 30, 37.

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Xystaema, 231, 234, 236.

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klunzingeri, Segutilus, 207.

kneri, Parupeneus, 317.

knoxii, Ctenolabrus, 192.

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krusensternii, Hoplognathus, 219.

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kuhlii, Corvina, 382.

Umbrina, 411.

kuiskuiana, Upeneoides, 340.

kummunikar, Lota, 335.

Kyphosidae, 203.

Kyphosinae, 203.

Kyphosus, 203, 204, 205.

bigibbus, 203, 204, 205, 210.

bleekeri, 204, 211.

cinerascens, 204, 211, 212.

elegans, 207.

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Underscored Res. 12

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Thyrssites bengalensis Alcock, Journ.  
Asiatic Soc. Bengal, vol. 63, pt. 2, ~~1894~~,  
<sup>1894</sup> p. 3, (type locality, Bay of Bengal, in  
145 to 250 fathoms); Illustrat. Zool.  
Investigator, Fisher, pt. 3, ~~1895~~,  
pl. 15, fig. 10, 1895. — Garnaud, Mem. Mus. Comp. Zool.,  
vol. 24, p. 384, 1899 (reference).

Thyrssites (Promethichthys) bengalensis Alcock,  
Cat. Fish. Indian Mus., (1899, p. 42) types.  
— Brauer, Deutsch. Tiefsee Exped. Valdivia, vol. 15, p. 397,  
<sup>1894</sup> (reference).  
Promethichthys bengalensis Goode  
and Bean, Oceanic Ichth., ~~1895~~, p.  
519 (reference).  
<sup>1895</sup>

Rexia furcifera Waite, Proc. New  
Zealand Inst. <sup>h. 49</sup>, 1910, pt. 2 (January 18,  
1911), ~~p. 47~~ (type locality, New Zealand).

Jordanidia raptoria Snyder, Proc.  
U. S. Nat. Mus., vol. 40, 1911, p. 527,  
(type locality, Kagoshima); vol. 42,  
1912, p. 410, (Tanegashima).

Not

hololepidotus, 373, 400.

hypostoma, 397.

hypostomus, 373, 397.

jubatus, 313, 399.

kuhli, 411.

leptolepis, 572, 381.

macropterus. 412.

maculatus, 372, 375, 380.

marleyi, 389.

microlepis, 373, 406.

miles, 393.

mitsukurii, 391.

novae-hollandiae, 372, 383.

ophiceps, 373, 402, 403.

osseus, 372, 379.

papuensis, 397.

parvus, 389, 390.

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plagiostomus, 373, 402.

polykladistos, 372, 388.

resplendens, 376.

ruber, 353, 356.

semiluctulosa 404.

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semiluctuosus, 373, 404.

serratus 390.

siamensis, 373, 392.

sina, 373, 388, 389.

soldado, 373, 388, 392.

trachycephalus 373 406

(428)

Depth  $5\frac{1}{2}$  to  $6\frac{1}{5}$ ; head  $2\frac{2}{3}$  to  $3\frac{1}{5}$ ,  
width  $3\frac{1}{8}$  to  $4\frac{1}{4}$ . Snout  $2\frac{2}{5}$  to  
 $2\frac{2}{3}$  in head from snout tip; eye  
 $3\frac{7}{8}$  to  $5\frac{1}{5}$ ,  $1\frac{2}{5}$  to 2 in snout,  
greater than interorbital;  
maxillary reaches to or  $\frac{1}{5}$  in eye,  
expansion  $2\frac{1}{8}$  to  $2\frac{3}{4}$ , length 2  
to  $2\frac{1}{4}$  in head from snout tip,  
with short oblique groove down  
from lower hind end; 2 to 4  
large fangs in front above and  
2 below (small with age),  
followed by 9 to 12 teeth each  
side; row of strong, small, close  
set, pointed teeth on each palatine;  
interorbital  $4\frac{3}{4}$  to  $6\frac{1}{2}$  in head  
from snout tip, low, deeply  
depressed. Gill rakers as 1+8  
irregular minute spinules,  
more or less in clusters; gill  
filaments <sup>2 to</sup> 3 in eye.

jeffi, Caprupeneus, 281.

*Pseudupeneus*, 271, 272, 281.

Johniinae, 353.

Johnius, 353, 370.

*aeneus*, 371, 376.

*albiflora*, 372, 385, 391.

*amoyensis*, 371.

*anei*, 378.

*aneus*, 372, 376.

*argentatus*, 373, 394.

*australis*, 372, 386.

*axillaris*, 373, 397.

*belangeri*, 382.

*belengeri*, 378, 382.

*belengerii*, 372, 382.

*birtwistlei*, 373, 403.

*er*  
*bleeki*, 373, 392.

*borneensis*, 372, 379.

*cantori*, 379, 380, 381.

*carutta*, 370, 372, 384.

*cataleus*, 375.

*coibor*, 372, 378.

*coitor*, 374, 383, 405.

*cujus*, 373, 390.

*diacanthus*, 372, 374, 389.

*dussumieri*, 373, 398.

*glaucus*, 398.

*goldmani*, 387.

*goldmanni*, 372, 387.

*goma*, 372, 374.

Scales very minute, deciduous, thin, fragile. Lateral line high and close along edge of back till below soft dorsal, gives off lower branch above middle of depressed pectoral which falls until little below middle of body axis, especially along side of caudal peduncle to caudal base.

D. <sup>XVII or XVIII</sup> <sup>I to III</sup>, 13, + 2 or 3 (once or 14), third spine 3 to  $3\frac{4}{5}$  in total head length, first branched ray  $2\frac{4}{5}$  to  $3\frac{2}{3}$ ; A. <sup>I to III</sup>, 10, + <sup>or 11 or 12</sup> 3, first branched ray ~~3~~ <sup>3 $\frac{1}{3}$</sup>  to  $4\frac{2}{5}$ ; caudal  $1\frac{4}{5}$  to  $2\frac{1}{5}$ , well forked; least depth of caudal peduncle 7 to  $9\frac{2}{3}$ ; pectoral  $1\frac{9}{10}$  to  $2\frac{1}{2}$ , rays I, 11 to <sup>or II</sup> <sup>I</sup> 12; ventral minute spine  $\frac{1}{3}$  of eye, absent with age.

ischyrus, Pseudupeneus, 303. 302.

Isosillago, 431.

maculata, 431, 432.

punctata, 432.

jagorii, Lethrinus, 13.

jansenii, Pseudupeneus, 317.

Pseudupeneus, 273, 317.

Upeneus, 317.

japonica, Gerreomorpha, 254, 256.

Nibea, 395.

Pseudosciaena, 395.

Sciaena, 392, 394.

Sciaena (Nibea), 395.

Sillago, 416, 425, 427.

Synagris, 101.

japonicus, Cypselichthys, 350.

Dentex, 101.

Diapteris, 254.

Eucinostomus, 254.

Gerras, 254.

Mulloidides, 263.

Mullus, 263.

Nemipterus, 102.

Scomber, 142.

Sparus, 101.

Synagris, 86, 101.

Upeneoides, 321.

Upeneus, 263.

Xystaema, 254.

Back and upper surface of head brown. Sides and below, also inclusive of eye, bright silvery white. Fins pale or whitish, spinous dorsal membranes blackish terminally and anteriorly, with conspicuous black blotch, large on fin anteriorly, also pectoral brownish above.

Bay of Bengal, East Indies, Japan, Tasmania, New Zealand. In depths to 250 fathoms.

guntheri, Lethrinus, 45.

guntheri, Hemipterus, 98.

Pachymetopon, 214.

guttulatus, Chrysophrys, 142.

Pagrus, 142.

Gymnocranius, 64, 129, 130, 133.

audleyi, 132.

bitorquatus, 129, 132.

frenatus, 130, 133.

griseus, 129, 130.

lethrinoides, 130.

lethrinus, 130.

microdon, 129, 132.

rivulatus, 134.

robinsoni, 130, 133.

Gymnocrotaphus, 65, 185.

curvidens, 185, 186.

haematopterus, Lethrinus, 6, 14, 39, 43, 45, 51.

Lethrinus, 44.

haffara, Chrysophrys, 162.

Chrysophrys, 150, 162, 163.

Sparus, 147, 162.

Sparus (Chrysophrys), 162.

harak, Aurata, 21.

Lethrinus, 6, 19, 21, 23, 27, 28, 30.

Lethrinus, 21.

Sciaena, 21.

Sparus, 21.

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Underwood 185. 12

U. S. N. M., No. 46755. Bengal Bay.  
Investigator Collection. Indian  
Museum. Length 115 mm.

U. S. N. M., No. 68228. Kagoshima.  
Length 253 mm. Type of  
Jordanidia raptoria.

U. S. N. M., No. 74601. Kagoshima.  
Bureau of Fisheries. Length 240  
to 260 mm. Four examples.  
Paratypes of Jordanidia raptoria.

goreensis, Box, 180.

gothofredi, Lethrinus, 33.

gracilis, Dentex, 106.

Sillago, 419, 424, 425.

Smaris, 107.

Synagris, 86, 106.

gracus, Scatharus, 133.

grammicus, Synagris, 102.

grande, Pachymatopon, 205, 214.

grandoculis, Aurata, 134.

Cantharus, 135.

Chrysophrys, 134.

Monotaxis, 134, 135.

Monotaxis (Sphaerodon), 135.

Sciaena, 134.

Sparus, 134.

Sphaerodon, 134.

grandoculus, Sparus, 134.

griseofrenatus, Upeneus, 288.

griseus, Dentex, 130.

Gymnocranius, 129, 130.

Synagris, 130.

gruveli, Dipterygiotus, 346, 347.

grypota, Corvina, 405, 406.

guentheri, Melambaphes, 198, 199.

gulminda, Cantharus, 114.

Dentex, 114.

Heterognathodon, 102.

Spondylisoma, 114.

Underscored figs. case 12.

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Genus Dicrotus Günther

Dicrotus Günther, Cat. Fish. Brit.  
Mus., vol. 2, ~~1860~~<sup>1860</sup>, p. 349. (Type  
Dicrotus armatus Günther, monotypic)

Body elongate, compressed, rather slender. Caudal peduncle short, compressed. Head rather large, compressed, with pointed muzzle. Snout long, conic. Eye small, high, slightly postmedian. Mouth large, lower jaw protruding. Maxillary reaches below eye. Teeth as 3 large front upper canines and large lower front fang, followed by 8 smaller teeth. Minute teeth on vomer and palatines. Preopercle with 3 weak divergent spines. Gill rakers 3 below, short points. No scales.

Lateral line complete, axial.  
 Dorsal continuous, spines longest  
 in front, graduated shorter  
 behind. Soft dorsal shorter than  
 spinous dorsal and opposite  
 similar anal. No finlets.  
 Caudal emarginate, small.  
 Pectoral short, low. Ventral  
 as long crenulated spine.

Probably the young of Gempylus  
 as in agreement largely with  
 Lütken's figures of the post-  
 larval stages of that genus.

### Analysis of Species

- a.<sup>1</sup> D. XVIII, 18; A. II, 16. armatus.  
a.<sup>2</sup> D. XX - 11; A. II - 8. parvipinnis.

Sillago maculata Quoy and Gaimard

- Sillago maculata QUOY and GAIMARD, Voy. Uranie, Zool., 1824, p. 261, pl. 5, fig. 2, (Sydney; Port Jackson). - CUVIER, Hist. Nat. Poiss., vol. 3, 1829, p. 411 (Port Jackson). - GÜNTHER, Cat. Fish. Brit. Mus., vol. 2, 1860, p. 245 (Sydney). - KNER, Reise Novara, Fische, 1865, p. 127 (Java; Manila). - STEINDACHNER, Sitz. Ber. Akad. Wiss. Wien, Math.-nat. Kl., vol. 53, pt. 1, 1866, p. 444 (Port Jackson); vol. 60, pt. 1, 1870, p. 562 (Singapore). - CASTELNAU, Proc. Zool. Acclimat. Soc. Victoria, vol. 1, 1872, p. 74 (Victoria). - BLEEKER, Verh. Kon. Akad. Wet. Amsterdam, vol. 14, 1874, p. 71 (Singapore, Bintang, Lepar, Java, Celebes, Philippines). - ALLEYNE and MACLEAY, Proc. Linn. Soc. New South Wales, vol. 1, 1876, p. 279 (No. 4 Island, Howick Group). - CASTELNAU, Proc. Linn. Soc. New South Wales, vol. 3, 1878, p. 380 (Port Jackson). - KLUNZINGER, Sitz. Ber. Akad. Wiss. Wien, Math.-nat. Kl., vol. 80, pt. 1, 1879, p. 369 (Endeavour River). - SCHMELTZ, Cat. Mus. Godeffroy, 7, 1879, p. 44 (Bowen). - KÁROLI, Termesz. Füzetek, Budapest, vol. 5, 1881, p. 162 (Cantor). - MACLEAY, Proc. Linn. Soc. New South Wales, vol. 5, 1881, p. 566. - WOODS, Fish. Fisher. New South Wales, 1882, p. 68, pl. 23. - PÜHL, Cat. Mus. Godeffroy, No. 9, 1884, p. 32 (Bowen). - OGILBY, Cat. Fish. New South Wales, 1886, p. 31. - KENT, Great Barrier Reef, 1893, pp. 292, 370 (Queensland). - OGILBY, Edible Fish. New South Wales, 1893, p. 101. - ELERA, Cat. Fauna Filip., vol. 1, 1895, p. 500 (compiled). - OGILBY, Handb. Sydney, 1898, p. 133. - WAITE, Sea Fisher. Rep. Thetis, 1898, p. 30 (Shoalhaven to Manning River, New South Wales, 16 to 84 fathoms); Rec. Australian Mus., vol. 4, 1902, p. 190. - New South Wales Nat.

Dicrotus armatus Günther

Dicrotus armatus Günther, Cat.  
Fish. Brit. Mus., vol. 2, (1860) p. 349,  
(type locality, unknown). — Goode  
and Bean, Oceanic Ichth., ~~1875~~ p.  
200, (copied).  
1895

Depth  $6\frac{1}{2}$  in total; head  $3\frac{1}{5}$ .  
Maxillary reaches below front  
eye edge; preopercle with 2  
spines at angle; opercle ends in  
2 obtuse points, separated by  
notch.

Apparently no scales. Lateral  
line bent down anteriorly.

D. XVIII, 18, spines moderately  
strong, tubercular, second to fifth  
longest or high as body and  
hind ones gradually decrease  
in length; A. II, 16, spines short.

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pectoral moderately long; each  
ventral single spine, inserted  
before pectoral, tubercular, very  
long, or equals body depth. Vent  
far backwards, its distance from  
head more than head length.

Uniform silvery. Length 58 mm.  
(Günther.)

Habitat unknown.

conceals maxillary. Gill rakers 16 or 17 on lower branch of first arch.

Scales 90 to 95 in lateral line; 14 or 15 above, 22 below, 8 rows on cheeks and preopercle flange scaleless; predorsal scales forward to  $2/3$  in eye; scales often lobate or pointed in center of free edge, especially on hind part of body. Tubercles <sup>in</sup> lateral line simple, pairs of pores show on some, especially anterior ones.

D. XI, 11 or 12, spines slender, fourth longest or about  $2$  in head, first ray little longer than last spine; A. III, 10.

Grayish or brownish, with faint traces of lighter and darker longitudinal streaks. Interorbital with more or less distinct dark band. Fins dark or blackish. Reaches 200 mm. (Barnard.)

hatal coast,

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Dicrotus parvipinnis (Goode and Bean)

Dicrotus parvipinnis Goode and Bean,  
Oceanic Ichth., (1895) pp. 201, 519, pl.  
, fig. 213 (type locality, h. lat.  
39° 56' 45" W. long. 70° 50' 30"; h.  
lat. 40° 0' 15" W. long. 70° 42' 20"; h.  
lat. 34° 39' 15" W. long. 75° 33' 30";  
off Cape Hatteras).

Promethichthys parvipinnis Jordan  
and Evermann, Bull. U. S. Nat. Mus.,  
no. 47, pt. 1, 1896, p. 883 (compiled).

Depth 6; head 3, width  $4\frac{1}{4}$ .

Snout  $2\frac{2}{3}$  in head from snout tip; eye  $3\frac{3}{4}$ ,  $1\frac{1}{3}$  in snout, greatly exceeds interorbital; maxillary reaches  $\frac{1}{4}$  in eye, length  $2\frac{1}{3}$  in head from snout tip; interorbital 7, low, depressed. Gill rakers below 3 short, low points, about  $\frac{1}{3}$  of gill filaments, which  $\frac{1}{3}$  of eye.

Lateral line complete, axial along side of body.

D. XX - 11, first dorsal height  $3\frac{1}{3}$  in total head, second dorsal height  $3\frac{2}{3}$ ; A. II - 8, first spine  $4\frac{3}{4}$ ; caudal  $2\frac{1}{8}$  (damaged), forked; least depth of caudal peduncle  $9\frac{1}{2}$ ; pectoral 2 (damaged); ventral  $2\frac{1}{8}$ , with compressed spine, its outer edge finely serrated.

Silvery white. Fins pale. Iris gray.

D. XI-I, 22, I, second spine  $1\frac{4}{5}$  to  $1\frac{9}{10}$  in head, first branched ray  $1\frac{7}{8}$  to  $2\frac{1}{2}$ ; A. III, 22, I or III, 23, I, first branched ray  $2\frac{4}{5}$  to  $3\frac{1}{10}$ ; caudal  $1\frac{1}{2}$  to  $1\frac{3}{5}$ , very slightly emarginate; least depth of caudal peduncle  $3\frac{1}{2}$  to  $3\frac{7}{8}$ ; pectoral  $1\frac{9}{10}$  to 2; ventral  $1\frac{9}{10}$  to 2.

Brown, little darker on back and upper surface of head above. Lower sides and under surface whitish. Iris brown, with yellow ring around pupil. Fins all transparent or pale brownish, dorsals dusted with some darker dots terminally on membranes. Caudal brownish. Other fins pale.

Moluccas, Japan (Nagasaki to Hakodate). Jordan and Snyder say it "closely resembles S. sihama, differing mainly from it in having the scales on the head ctenoid and in having larger scales above the lateral line, there being but three series between lateral line and insertion of dorsal". I cannot find they are correct, as the denticles on the scales of the head vary very greatly. Most specimens I have seen have at least a few denticles present, if not conspicuous. Jordan and Snyder have apparently not compared Bleeker's figures, as they both show 4 scales above the lateral line. Bleeker, however, figures Sillago sihama with dull brown spots on the membranes of the soft dorsal and the preopercle edge entire. He also shows the eye of Sillago japonica a little advanced from the center in the head length while in Sillago sihama it is posterior from the center in the head length. Day gives 6 scales above the lateral line and last dorsal spine for Sillago sihama and his figure shows the eye as in Bleeker's figure. The position of the eye is quite variable in Japanese specimens of Sillago japonica for I find it both median and posterior. A Red Sea example shows 6 scales above the lateral line to spinous dorsal origin and the eye center only very slightly behind center in head length. Its soft dorsal has dusky or dark dots on the membranes, but not the pale brown spots Bleeker shows. The bony edge of the preopercle under the membranous border is rough.

## Gulf Stream.

U. S. N. M., No. 4461. N. lat.  $40^{\circ}$  W. long.  $70^{\circ}$ . Albatross Collection. Length 20 mm.

U. S. N. M., No. 39345. N. lat.  $34^{\circ}$  W. long.  $75^{\circ}$ . Albatross Collection. Length 20 mm. Type of Microtus parvipinnis.

U. S. N. M., No. 44610. N. lat.  $39^{\circ}$  W. long.  $70^{\circ}$ . Albatross Collection. Length 36 mm.

Ant. Leader  
Follow - Incl. Cont.

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- 22593 U.S.N.M. Awa. Japanese Government. Length 190 mm.
- 26241 U.S.N.M. Japan. P.L. Jouy. Length 190 mm.
- 26241 U.S.N.M. Japan. Prof. E.S. Morse. Length 80 to 222 mm. 9 examples.
- 37984 U.S.N.M. East Asia. N.M. Ferebee. Length 132 mm.
- 44876 U.S.N.M. Japan. Japanese Government. Length 187 to 220 mm. 3 ex-  
amples.
- 57528 U.S.N.M. Japan. P.L. Jouy. Length 87 to 92 mm.
- 57591 U.S.N.M. Japan. P.L. Jouy. Length 156 mm.
- 59670 U.S.N.M. Kochi. Dr. H.M. Smith. Length 147 mm.
- 7134 U.S.N.M. Kagoshima. Albatross collection. Length 107 to 180 mm.  
8 examples.
- 76635, 76636 U.S.N.M. Takao, Formosa. Dr. Fred Baker. Length 86 to 102 mm.  
10 examples.
- 86101 U.S.N.M. Nanking, China. C. Ping. Length 123 mm.  
A. de C.
- 87031 U.S.N.M. Foochow. /Sowerby. Length 75 to 110 ? mm. 3 examples.
- 86368 U.S.N.M. China. A. de C. Sowerby. Length 55 to 95 mm. 3 examples.

Sillago parvisquamis Gill

Sillago parvisquamis GILL, Proc. Acad. Nat. Sci. Philadelphia, 1861,  
p. (504) 505. Kanagawa, near Yokohama. - JORDAN and SNYDER, Proc.  
U.S. Nat. Mus., vol. 24, 1902, p. 487 (Tokyo Bay). - FRANZ, Abh.  
Bayer. Akad. Wiss., Math.-phys. Kl., vol. 4, Suppl. vol. 1, 1910,  
p. 83 (Yokohama). - JORDAN and HUBBS, Mem. Carnegie Mus., vol. 10, No.  
2, June 27, 1925, p. 248 (Tokyo market).

Genus Gempylus Cuvier

439

Gempylus Cuvier, Règne Animal,  
vol. 2, ed. 2, (1829, p. 200.) (Type  
Gempylus serpens Cuvier, monotypic.)

Lemnisoma Lesson, Voy. Coquille,  
Zool., vol. 2, pt. 1, <sup>p. 160,</sup> November 1831, ~~for~~  
~~new~~ (Type Lemnisoma thyrsitoides  
Lesson, monotypic.)

Zyphothysca Swainson, Nat. Hist.  
Animal, vol. 2, (1839, p. 239.) (Type  
Gempylus coluber Valenciennes,  
monotypic.)

Body greatly elongated, strongly  
 compressed, <sup>tail  $2\frac{2}{3}$  in trunk.</sup> band shaped, ~~caudal~~  
~~peduncle compressed.~~ Head  
 elongate, attenuated. Snout conic,  
 pointed. Eye moderate, <sup>slightly postmedian.</sup> high,  
 mouth large, lower jaw protruding  
 in front. <sup>maxillary reaches below eye.</sup> Front upper teeth  
 very long, canine like. Irregular  
 row of small teeth on each  
 palatine, none on vomer. Nostrils  
 small, well separated, front one  
 pore like, hind one small vertical  
 slit. Gill rakers reduced, small  
 irregular points. <sup>Branchiostegals 7.</sup> Air bladder  
 present. Vertebrae 53, of which  
<sup>Pyloric caeca 9 or 10.</sup> 25 caudal. Scales minute or  
 obsolete. Lateral line double,  
 begins opposite first dorsal spine;  
 upper branch high on back to  
 below soft dorsal; lower branch  
 complete to caudal base. Dorsal  
 spines 29 to 32, base long. Soft

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D. X-I, 26, I, second spine prolonged filament equal to  $1\frac{4}{5}$  in entire length of specimen, first branched ray  $2\frac{1}{2}$  in head; A. II, 25, I, second branched ray  $3\frac{1}{5}$ ; caudal  $1\frac{2}{3}$ , slightly emarginate behind; least depth of caudal peduncle  $4\frac{4}{5}$ ; pectoral  $1\frac{2}{3}$ ; ventral  $2\frac{3}{5}$ .

Upper half of body light brown, lower half paler to whitish. Iris silvery white. Fins pale brownish.

11668 A.N.S.P. East Indies. Dr. H.C. Wood. Length 195 mm.

Family Arripidae ← 121

Body elongate, fusiform, well compressed. Head moderate or small. Snout conic. Eyes lateral, advanced in head. Mouth cleft lateral, oblique. Teeth villiform or cardiform, in jaws and on palate. Preopercle denticulate. Gill openings large. Air bladder simple. Vertebrae 25, of which 15 caudal. Scales of moderate size. Lateral line complete. Dorsals continuous, with slender and rather feeble spines, similar in anal. Paired fins small, short, subequal, though ventrals thoracic.

One genus, represented in southern Australian and New Zealand seas. An aberrant percoid family, known chiefly by their feeble dentition and fin spines.

Genus Arripis Jenyns ← 130

Arripis JENYNS, Zool. Voy. Beagle, Fish., vol. 4, (1840, p. 13. (Type,

Centropristes georgianus VALENCIENNES, monotypic.)

Mulloid (SOLANDER) RICHARDSON, Rep. XII Meet. Brit. Assoc. Adv. Sci.,

1842(1843), p. 13. [Type Centropristes (Mulloid) spidissimus

(SOLANDER) RICHARDSON = Sciaena trutta SCHNEIDER, monotypic (precludes Mulloid BLEEKER, 1849 in Mullidae.)

branched rays 11 or 12,  
 dorsal low, with lobe anteriorly,  
 like anal and both followed by  
 5 to 7 finlets. Caudal small,  
 well forked. <sup>Caudal peduncle without keel, narrow.</sup> Pectoral moderate <sup>low.</sup>  
 ventral very minute or rudimentary,  
 with spine and 5 rays, inserted  
 close behind pectoral base.  
 Large pelagic fishes of  
 sombre coloration, of slender  
 form and with prominent dentition.  
 Young of Dicrionus form, with large  
 head, spinous ventrals and  
 preopercles.

Follow—Indo-China

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Sillago boutani PellegrinSillago boutani PELLEGRIN, Bull. Soc. Zool. France, vol. 30, 1905, p. 86.

Baie de Hatan, Along.

Depth 7; head  $2\frac{1}{8}$ . Eye 7 in head, 3 in snout,  $1\frac{1}{2}$  in inter-orbital. Teeth villiform. Preopercle denticulate. Scales 74 in lateral line, 5 above, 12 below to middle of belly, strongly ciliated; 3 rows on cheek. D. XI, I, 21; A. II, 22; caudal subtruncate; caudal peduncle depth  $1\frac{1}{2}$  its length; pectoral  $1\frac{1}{2}$  in head. Yellowish olive on back, pale on sides and abdomen. Jaws and opercles with orange-yellow. Two orange-yellow lines along flanks. Fins uniformly gray. Some traces of punctuations on first dorsal rays. Length 180 mm. (Pellegrin.)

Indo-China.

Sillago bostockii CASIMIR<sup>1)</sup> as interpreted by McCulloch<sup>2)</sup> is6-Ft.  
footnote

<sup>13</sup>1) Proc. Zool. Acclimat. Soc. Victoria, vol. 2, 1873, p. 133. (Freemantle, Western Australia).

6-Ft.  
footnote

<sup>14</sup>2) Zool. Res. Endeavour, vol. 1, pt. 1, Dec. 22, 1911, pp. 60, 61 (Freemantle).

very close to, if not the same as Sillago boutani. For comparison it may be noted he gives: Scales in lateral line 69 to 74; D. XI, 21 or 22; A. 19 to 21; no black mark on pectoral base.

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Gempylus serpens Cuvier

Gempylus serpens Cuvier, Règne Animal, vol. 2, ed. 2, (1829) p. 200, (on Serpens manus Sloane, Voy. Jamaica, vol. 1, (1707), p. 26, pl. 1, fig. 2, type locality, About tropic of Cancer); Hist. Nat. Poiss., vol. 8, (1831) p. 207 (on Solander). — Valenciennes, Règne Animal Cuvier, Ed. Ill., Poiss., (1839) pl. 49, fig. 2, — Günther, Cat. Fish. Brit. Mus., vol. 2, (1860) p. 352 (copied); Journ. Mus. Godeffroy, vol. 4, (1875), p. 106, pl. 68, fig. B, (Hawaiian Islands); Rep. Voy. Challenger, vol. 22, ~~1887~~, p. 41, <sup>1887</sup> (Canaries, Caribbean Sea; Hawaii, Society Islands). — Goode and Bean, Oceanic Ichth., (1895) p. 202, pl. ~~fig.~~ (copied). — Jordan and Evermann, Bull. U. S. Nat. Mus., no. 47, pt. 1, 1896, p. 684, <sup>1896</sup> (compiled) — Waite, Rec. Austral. Mus., vol. 8, pt. 7, ~~June 15,~~ 1900, p. 199, June 15, 1900.

— Jordan, Tanaka, Snyder, Journ.  
College Sci. Tokyo, vol. 33, (1913) p. 122,  
(Japan). — Gilchrist, Marine  
Biol. Rep. South Africa, vol. 2,  
p. 126, fig., 1914 (East London). —  
Barnard, Ann. South Afric. Mus.,  
vol. 21, pt. 2, p. 789, October 1927 (East  
London record).  
— Fowler, Mem. Bishop Mus., vol. 10,  
(1928) p. 135, (Honolulu).

72276 U.S.N.M. Aparri, Philippines. R.C. MacGregor. Length 96 to 110 mm.

2 examples.

134789

773

72692 U.S.N.M. Java. Bryant and Palmer. Length 133 mm.

84181 U.S.N.M. Philippines. Dr. F. Baker. Length 122 mm.

27781, 27782 A.N.S.P. Padang, Sumatra. A.C. Harrison and H.M. Hiller.

Length 123 to 173 mm.

47458 to 47471 A.N.S.P. Philippines. Commercial Museum of Philadelphia.

52855 A.N.S.P. Santa Maria, Luzon. January 28, 1923. Rev. Joseph Clemens.

Purchased. Length 80 mm.

53058 A.N.S.P. Durban beach, Natal. 1927. H.T. Bell Marley. Length 142 mm.

53100 A.N.S.P. Durban beach. June 23, 1923. H.T. Bell Marley. Length 136 mm.

53166, 53167 A.N.S.P. Bombay, India. 1924. Prof. F. Hallberg. Length 98

to 162 mm.

2 examples, A.N.S.P. Orani, Batuan Province, Luzon. April 28, 1923. Rev.

Joseph Clemens. Length 134 to 174 mm.

1 example, A.N.S.P. Vigan, Ilocos Sur, Luzon. February 6, 1923. Rev.

Joseph Clemens. Length 125 mm.

5 examples, A.N.S.P. Santa Maria, Ilocos Sur, Luzon. January 28, 1923.

Rev. Joseph Clemens. Length 89 to 110 mm.

2 examples, A.N.S.P. San Fernando Bay, San Juan, Luzon. February 23, 1923.

Rev. Joseph Clemens. Length 89 to 110 mm.

Scomber serpens (Holander) Cuvier,  
 Hist. Nat. Poiss., vol. 8, 1831, p.  
 (near Canaries, September 22, 1768).

Lemnisoma thyrsoitoides Lesson, Voy.  
Coguille, Zool., vol. 1, pt. 2, (1831) p. 160,  
 (type locality, South Sea near  
 Paumotu Islands in S. lat.  $17^{\circ}$  E.  
 long.  $108^{\circ}$ ) <sup>+ Garman's</sup> — Jordan and Evermann,  
 Bull. U. S. Fish Comm., vol. 23, pt. 1,  
 (1903 (1905)) p. 179 (Puna to south of  
 Hilo; Honolulu). — Nichols, Amer.  
 Mus. Novitat. New York, no. 94, <sup>p. 3,</sup> Oct.  
 19, 1923, ~~pp. 179~~ (Quail Island).

Lemnisoma serpens Fowler, Proc.  
 Acad. Nat. Sci. Philadelphia, ~~1904~~  
~~1905~~ p. 767, pl. 51, upper fig., nov. 1904  
 (San Domingo, West Indies).

~~Thyrs~~ Gempylus thyrsoitoides Garman,  
 Mem. Mus. Comp. Zool., vol. 24, p. 384,  
 1899 (reference).

Red Sea, Arabia, Madagascar, India, Ceylon, East Indies, Philippines, Indo-China, China, Formosa, Japan, Korea, Melanesia, Australia. In my "Fishes of Oceania" I placed Sillago gracilis Alleyne and Macleay as a synonym, though, as McCulloch has placed it with Sillago maculata Quoy and Gaimard besides as the original figure shows a dark mark at the base of the pectoral, it had best remain with Quoy and Gaimard's species.

22099. Abuyog, Leyte. July 26, 1909. Length, 116 mm.

22714. Balayan Bay, Luzon. January 19, 1908. Length, 118 mm.

9 examples. Beach near ~~and~~ off Daet, Luzon. June 15, 1909. Length, 61 to 110 mm.

20287. Below mouth Mindanao River, Cotabato, Mindanao. May 20, 1908. Length, 75 mm.

21242. Below mouth Mindanao River, Cotabato. May 22, 1908. ~~May 22, 1908~~ Length, 88 mm.

4 examples. Buena Vista, Guimaras Island. January 14, 1909. Length, 58 to 138 mm. Seine in mouth of river.

22138 (D5461). Caringo Island (14), N. 12° (W.), 4.9 miles (13° 57' 42" N., <sup>Cat.</sup> 123° 06' 42" E.). June 14, 1909. Length, 199 mm.

8847, 9110, 9111. Catbalogan, Samar. April 15, 1908. Length, 117 to 165 mm.

5961, 12086. Cavite market. December 1, 1908. Length, 117 to 172 mm.

7520, 7530. Cotabato, Mindanao. May 20, 1909. Length, 107 to 111 mm.

22516. Dagupan, Luzon. March 19, 1908. Length, 153 mm.

22116. Davao, Mindanao. May 16, 1908. Length, 101 mm.

20087. Dumaca River, Luzon. February 25, 1909. Length 83 mm.

16331. Endeavor Strait, north west coast Palawan. December 23, 1908. Length, 121 mm.

7 examples. Estero, Sablayan Bay, Mindoro. December 13, 1908. Length,

46 to 69 mm.

445

Gempylus coluber Cuvier, Hist. nat.  
Poiss., vol. 8, (1831) p. 211, pl. 221,  
(type locality, Tahiti). — Günther,  
Cat. Fish. Brit. Mus., vol. 2, (1860)  
p. 353, (copied). — Jordan and  
Snyder, Annot. Zool. Japon.,  
vol. 3, (1901) p. 65, (Yokohama).

Gempylus ophidianus Poey, Mem.  
Hist. Nat. ~~de~~ Cuba, vol. 2, ~~1861~~  
p. 246, (type locality, Cuba).  
1861

8 pt. Leaded

134789

771

6025, 6031. # Hinunangan Bay, Leyte Island. July 30, 1909. Length 80 to 109 mm.

19377. Iloilo market. March 28, 1908. Length 107 mm.

20598. Lingayen Gulf, Luzon. May 11, 1909. Length 213 mm.

5569 to 5573, 7404. Malaga River, Hinunangan Bay, Leyte Island. July 30, 1909

Length 178 to 241 mm.

11645. # Malampaya Island. December 26, 1908. Length 118 mm.

19605. Manila Harbor. January 13, 1908. Length 74 mm.

3 examples. # Manila Harbor. March 16, 1908. Length 100 to 115 mm.

9 examples. Manila Harbor. December 30, 1909. Length 43 to 103 mm.

11592. # Manila market. March 16, 1908. Length 197 mm.

5 examples. # Manila market. December 12, 1909. Length 97 to 163 mm. Silvery

greenish on back. A silvery lateral stripe. Dorsal dusky. Caudal green

ish, with dusky edge. Anal and ventral bright yellow. Pectorals plain.

A common market fish.

6224. # Mantaquin Bay, Palawan. April 2, 1909. Length 160 mm.

21608. Matnog Bay, Luzon. May 31, 1909. Length 107 mm.

20351. Nato River, Lagonoy Gulf, Luzon. June 17, 1909. Length 68 mm.

20659. North end Endeavor Strait, north west coast Palawan. December 22,

1908. Length 110 mm.

19575. # Paluan Bay, Mindoro. December 11, 1908. Length 114 mm.

1 example. # Panabutan Bay, Mindanao. February 6, 1908. Length 48 mm.

20993. # Parang Parang, Mindanao. May 23, 1908. Length 171 mm.

14222. Port San Pio Quinto, Camiguin Island. November 11, 1908. Length,

105 mm.

19509, 19510. # Ragay River, Ragay Gulf, Luzon. March 10, 1909. Length 25

to 96 mm. 8 examples. Smallest with 10 or 11 dark brown spots axial along middle of side, of which last 2 on caudal base. As seen above 8 dark-brown median blotches, first predorsal, second and third at spinous dorsal base, fourth before soft dorsal origin, fifth to seventh along base of soft dorsal and eighth at caudal peduncle above.

Depth  $1\frac{7}{10}$  to  $1\frac{4}{5}$ ; head  $5\frac{2}{5}$ , width  $5\frac{1}{2}$ .  
Snout  $1\frac{9}{10}$  in head from snout tip; eye  $5\frac{2}{3}$  to  $5\frac{4}{5}$ ,  $2\frac{4}{5}$  to  $3\frac{3}{4}$  in snout, greater than interorbital; maxillary reached  $\frac{1}{5}$  to  $\frac{1}{4}$  in eye, expansion  $1\frac{1}{2}$  to  $2\frac{1}{4}$  in eye, length  $1\frac{4}{5}$  to  $2$  in head from snout tip; interorbital  $7\frac{1}{2}$  to  $7\frac{1}{3}$  slightly convex, <sup>or level, low, with broad median depression.</sup> Gill rakers rather few, small, irregular, obsolete points.

Narrow, thin, elongate scales only evident on caudal peduncle and caudal base. Lateral line double, becomes axial along side above end of pectoral.  
D. ~~XXIX~~ to ~~XXIX~~ <sup>or</sup> ~~XXIX~~ <sup>to</sup> ~~XXIX~~,  $10\frac{1}{2}$  to  $12$ , seventh spine  $4\frac{1}{6}$  to  $5$  in total head, soft dorsal lobe  $3\frac{1}{10}$  to  $4\frac{1}{3}$ ; A. I - II,  $9\frac{1}{2}$  to  $11\frac{1}{2}$ , soft anal lobe  $3\frac{1}{3}$  to  $4\frac{1}{3}$ ; caudal  $1\frac{1}{2}$  to  $2$ , rudimentary rays strong; least depth of caudal peduncle  $8\frac{1}{2}$  to  $9\frac{1}{2}$ ; pectoral  $2\frac{1}{3}$  to  $2\frac{3}{4}$ , rays II, 12; ventral length very short, rudimentary, with spine and 3 rays.

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Brown, <sup>to gray black,</sup> with leaden-silvery shades, back apparently brown. Top of head brown. Iris gray. Dorsal brown, <sup>membrane of spinous fin black.</sup> Caudal blackish brownish. Anal pale brown. Pectoral brownish, little darker basally. Inside mouth and gill opening blackish.

South Africa, Japan, Polynesia, Cocos Islands, Hawaii. Also in the Atlantic at Cuba, Caribbean Sea and Canaries..

U. S. N. M., no. 92581. Tahiti.  
Eastham Guild. Length 948 mm.

A. N. S. P., no. 11441. Santo Domingo.  
W. M. Gabb. Length 803 mm.

gnt. Loaded

134789

802

Enoplosus armatus (White)

Chaetodon armatus (SHAW) WHITE, Voy. New South Wales, 1790, p. 254, pl. 1.

1. (New South Wales) [Botany Bay by WHITLEY 1930]. - SHAW, Natural.

Miscellany, vol. 2, 1791, pl. 57 (New Holland). - WALBAUM, Artedi

Pisc., vol. 3, 1792, p. 444 (copied). - SCHNEIDER, Syst. Ichth. Bloch,

1801, p. 227 (New Holland).

Enoplosus armatus CASTER, Hist. Nat. Poiss., vol. 2, 1828, p. 133, pl. 20

(New Holland). - GÜNTHER, Cat. Fish. Brit. Mus., vol. 1, 1859, p. 81

(Sydney; Australia). - SCHMELTZ, Cat. Mus. Godeffroy, No. 4, 1869,

p. 12 (Australia). - CASTELNAU, Proc. Zool. Acclimat. Soc. Victoria,

vol. 1, 1872, p. 47 (Melbourne market); London Internat. Exhib. Cat.,

1872, pp. 132, 133 (Victoria). - SCHMELTZ, Cat. Mus. Godeffroy, No. 6,

1877, p. 11 (Sydney). - MACLEAY, Proc. Linn. Soc. New South Wales, vol.

5, 1881, p. 309 (east and south coasts Australia). - WOODS, Fish.

Fisher. New South Wales, 1883, p. 32, pl. 2. - OGILBY, Edible Fish.

New South Wales, 1893, p. 6. - WAITE, Prelim. Rep. Thetis Exp. 1898, p.

23 (Between Newcastle and Port Stephens, in 48 fathoms). - STEAD,

Fishes of Australia, 1906, pp. 96, 105, fig. 39 (New South Wales,

Victoria, Queensland). - FOWLER, Proc. Acad. Nat. Sci. Philadelphia,

1907, p. 433 (Sorrento, Victoria). - STEAD, Edible Fish. New South

Wales, 1908, p. 62. - WAITE, Biol. Res. Endeavour, vol. 3, pt. 3, Apr.

21, 1915, p. 143 (type of Enoplosus serotinus; Wide Bay, Queensland;

24 miles south southeast of Eagles Nest, Victoria, in 45 fathoms). -

ROUGILEY, Fishes of Australia, 1916, p. 85, pl. 26 (New South Wales,

Victoria, South and West Australia, Queensland). - WAITE, Rec. South